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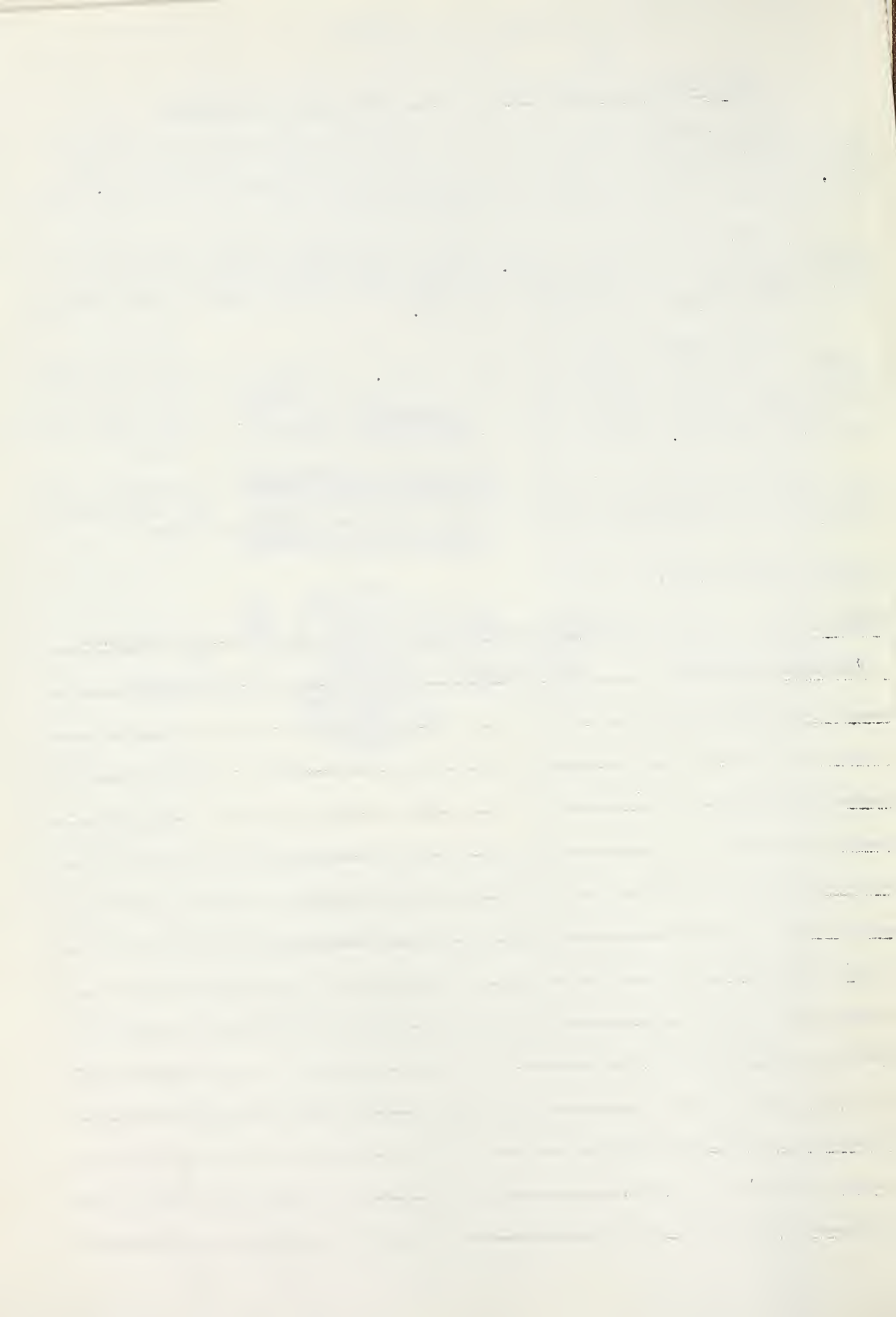
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The undersigned hereby certify that they  
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Studies for acceptance, a thesis entitled .....  
Business Fluctuations and External Trade in an...  
..... Open Economy.....  
..... Canada since 1926.....  
submitted by ..... Marian Krzyzaniak.....  
in partial fulfilment of the requirements for the  
degree of Master of ..... Arts.....

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Date .. May 27 .. 1954 ..





U N I V E R S I T Y O F A L B E R T A

An abstract of

Business Fluctuations and External Trade in An Open Economy,  
Canada since 1926,  
by Marian Krzyzaniak  
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A survey of gross national expenditure for Canada and the United States during the period 1926-1952 revealed many differences in the manner in which the two series changed. One of the most important differences was found to arise from the relatively open character of the Canadian economy as contrasted to the more closed nature of the American economy. The American economy depended very little on external trade, but for Canada a positive balance of trade and a high level of exports were of vital importance. Also the relation of changes in exports and the balance of trade to changes in gross national expenditure was different in the two countries. Changes in the Canadian balance of trade always, and changes in exports usually, led changes in gross national expenditure by one year or more. The United States balance of trade and exports exhibited no such consistent lead over gross national product.

A closer examination of the Canadian balance of trade and exports revealed that very considerable changes occurred in their composition and direction during the period under study. For instance, during the late twenties nearly half of the exports of merchandise consisted of agricultural and vegetable products, especially of wheat and flour. Since then the share of agricultural and vegetable products in Canadian exports of



goods declined to a quarter only.

As agricultural and vegetable products were exported mostly to Europe and especially to the United Kingdom, the share of exports destined for the United Kingdom as compared with the total exports declined as well. Moreover, as a result of the deflationary policy adhered to by the United Kingdom during the twenties, her total trade with Canada was declining as well during this period. Changes in the composition of exports to the United States were not so extreme. The more rapid cyclical expansion in the United States during the twenties stimulated imports from Canada. As a result, Canadian exports to the United States surpassed those to the United Kingdom.

Accordingly, Canada had to adjust to changes in the direction of flow of her exports. The shift in export markets to the United States also gave rise to changes in the price structure. Particularly was this true of the price relationships between raw materials and partly manufactured products both in domestic trade and in foreign trade. Prior to the late twenties, Canada's external trade had been largely adapted to price and income conditions in the British economy. The subsequent adaptation to the more rapidly inflating United States economy initiated certain effects. The resulting changes in the price structure and gross national expenditure of Canada by the action of the foreign trade multiplier with particular emphasis on the





role of American income-induced imports from Canada were notable.

During the thirties, the recovery in the United Kingdom came about sooner and more rapidly than was the case in the United States. During this period Canadian exports to the United Kingdom again equalled those to the United States, but the closer ties between the Canadian and American economies still remained. In the post-war period, Canadian trade with the United States once more expanded more rapidly. There is little doubt left that this trend will persist.





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THE UNIVERSITY OF ALBERTA

BUSINESS FLUCTUATIONS AND EXTERNAL TRADE IN AN OPEN ECONOMY,  
CANADA SINCE 1926.

A Dissertation

Submitted to the School of Graduate Studies in Partial  
Fulfillment of the Requirements for the Degree of  
MASTER OF ARTS

The Faculty of Arts and Science  
Department of Political Economy

by

M A R I A N      K R Z Y Z A N I A K

EDMONTON, Alberta.

May 27 , 1954.



## A C K N O W L E D G E M E N T

The author wishes to thank Mr. W.D. Gainer  
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and frequent assistance in this work.



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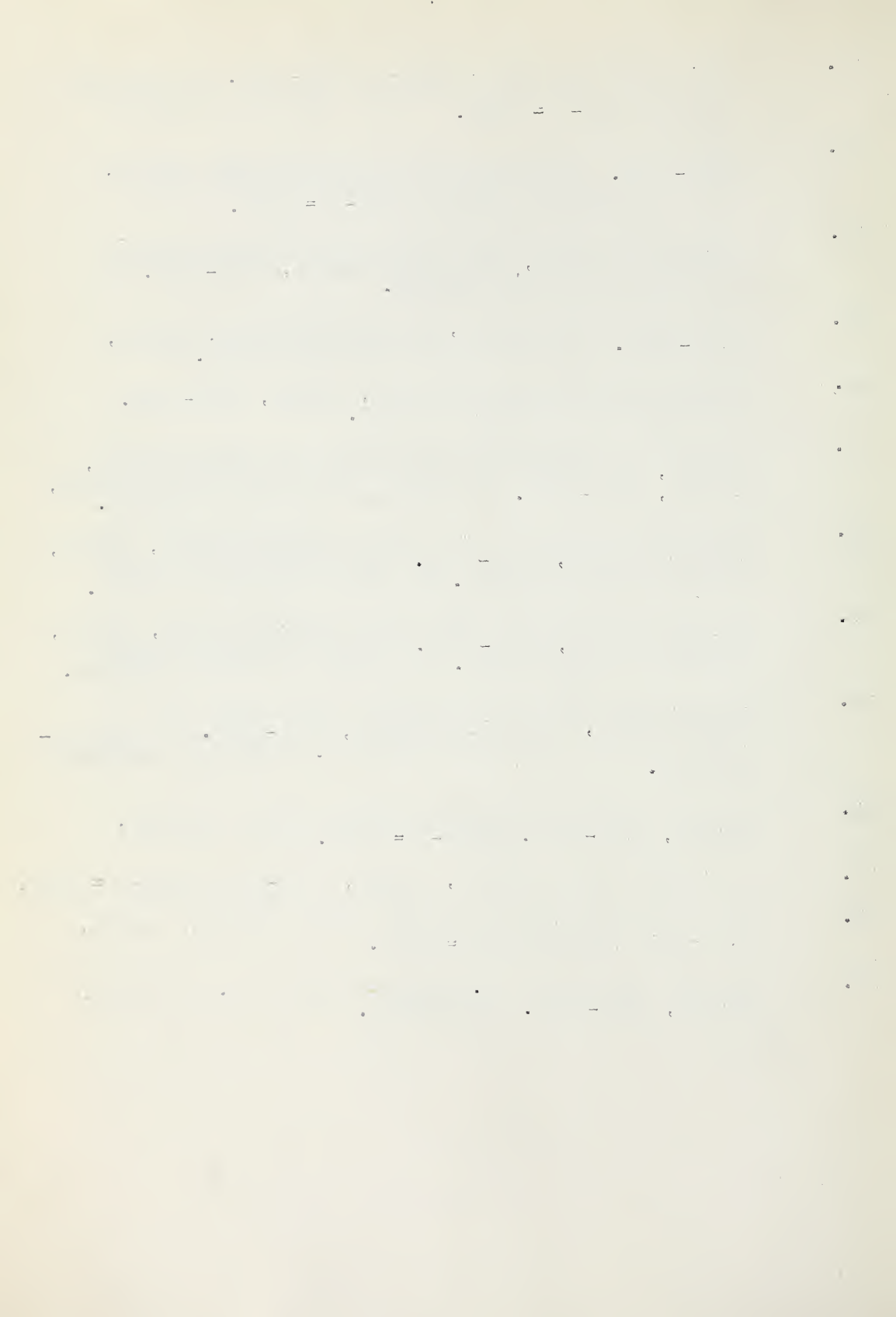
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## INTRODUCTION.

As the title suggests this study is an attempt to examine the kinds and causes of changes in Canadian economic activity associated with cyclical swings in business activity. The post-war years included in the period under study were of limited use in some connections because of possible abnormalities.

In Part I of this paper an attempt was made to isolate differences between changes in certain Canadian and American series. The income expenditure approach was used, i.e., gross national expenditure, its components and subcomponents for both countries were compared.

A major handicap to this approach was that yearly aggregates had to be used. This meant a loss of valuable information since no exact timing of turning points in studied series are revealed in such coarse data. That is to say, shorter leads and lags will be lost in summations. This was partially offset by elimination, through summations of data, of less important differences, particularly seasonal fluctuations.

Because of the extensive financial and trade relationships existing between Canada and the United States, it was felt that an initial approach should consist of comparing the Canadian experience in business fluctuations with that of its neighbour to the south. To a certain degree the same procedure was extended to the experiences of the United Kingdom.

In comparing the various national income series of the United







States with those for Canada, a certain problem arises with respect to the evaluation of the possible significance of differences in series of the two countries. This applies to questions of both timing and intensity of changes. In view of certain restrictions on both the adequacy and comparability of data in all years as well as the limited number of yearly observations available, the author has chosen a very coarse method of stating differences which, it is hoped, will at least be sufficient to point up major dissimilarities between series of the two countries.

Annual figures calculated as a percentage of the comparable figure for the base year (1929) indicated the range of change. Percentages of total value of gross national expenditure indicated the importance of a particular component or subcomponent to the whole economy. Turning points in the various series revealed which series led or lagged.

Data available were usually expressed in current dollars. For some data constant dollar series were also available to the writer for the whole period under study or for some years at least. Current dollars series were used extensively since their computation over long periods of time can be more exact. Constant dollar series represent an index of volume, and in a dynamic society indexes with unchanged weights are not likely to represent faithfully actual changes in volume over longer periods of time.

The comparability of American and Canadian series was not



perfect in all instances. Canadian government spending excluded investment by government businesses whereas the American counterpart of this series included this item. Hence the Canadian gross domestic investment series included investment by government businesses and the American series excluded this item.

The gross domestic investment series was differently subdivided in both countries. The Canadian series amongst other components was subdivided on the basis of new residential construction and new nonresidential construction. The American counterpart showed only new construction, and presumably both residential and commercial elements of this series were combined. The separate Canadian series for new residential and for nonresidential construction changed in a different manner over the years. These differences were obscured in the single series for the United States.

Accordingly, an attempt was made to split the United States data, or at least to estimate the residential and commercial components. Two series were utilized for this purpose from other sources in the United States: one relating to 'new residential construction activity' and the other to 'new nonresidential construction activity'. Since the sources involved differ from those utilized in the construction of the national accounts for the United States, the two series do not always add up exactly to the national accounts figure for new construction. Since the discrepancies are not great, however, the separate series were useful for comparative purposes.

Part I of thesis also sets forth figures for the Canadian



balance of trade, exports and imports. A more thorough study of Canada's trade relations was found necessary, however, and this was reserved for Part II of the study.

Data for Part II were somewhat less uniform than for Part I of this thesis. Frequently for some years data would cover fiscal years, and at other times, only calendar years. For some data a change in the method of computation would occur periodically. These difficulties were noted in the text as they occurred.

The relation between exported goods and their production in Canada was also studied. The difficulty here was that data for exports referred to certain groups of goods for which data with regard to their production in Canada were either lacking or were obscured by lumping such data in broader groups than was the case for exports. The same could be said about data relating exports, internal incomes and investment in export industries. To avoid this difficulty, in some instances, a limited number of goods was chosen as representing the group. Closer examination was then directed towards these selected series.

Despite the limitations of available data, a number of useful relationships was established emphasizing the unique characteristics and changes in the characteristics of the Canadian economy during the period under study.



PART ONE

CANADIAN AND AMERICAN GROSS  
NATIONAL EXPENDITURE, ITS  
COMPONENTS AND SUBCOMPONENTS  
COMPARED





## Chapter I. GROSS NATIONAL EXPENDITURE

According to Prof. Wesley Mitchell 1/ among others, a business cycle is a fluctuation in aggregate economic activity. The most all-inclusive manifestation of such fluctuation is an alteration in the direction of change in real national income or output. Since money income fluctuates usually in the same direction as real income and is easier to compute, changes in money income will be used here as a first approximation to changes in real income and aggregate economic activity. More specifically, the series for gross national product or expenditure in money terms will be used throughout in observing changes in economic activity. On the numerous occasions where the real value of gross national expenditure is intended to apply, a statement will be made to this effect.

The real value of gross national expenditure for different countries was calculated in units of appropriate currency of constant value. For Canada the purchasing power of Canadian dollars during the period from 1935 to 1939 was the basis. For the United States the purchasing power of the United States dollar in 1939 was used as a measuring stick. For Great Britain,

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1/ Wesley Mitchell, Business Cycles: The Problem and Its Setting, (National Bureau of Economic Research, New York, 1927), as quoted by Alvin H. Hansen, Business Cycles and National Income, (W. Norton & Co., New York, 1951), p. 4.



the so called International Units (I.U.) were used 1/. An international unit, according to Collin Clark, represents the average quantity of commodities exchangeable for one American dollar during the period from 1925 to 1934. With this in mind we can proceed to study changes in the money and real values of gross national expenditure, although this will be limited to the period 1926-1939 in the case of the United Kingdom. Diagram No. 1 illustrates changes in these series graphically.

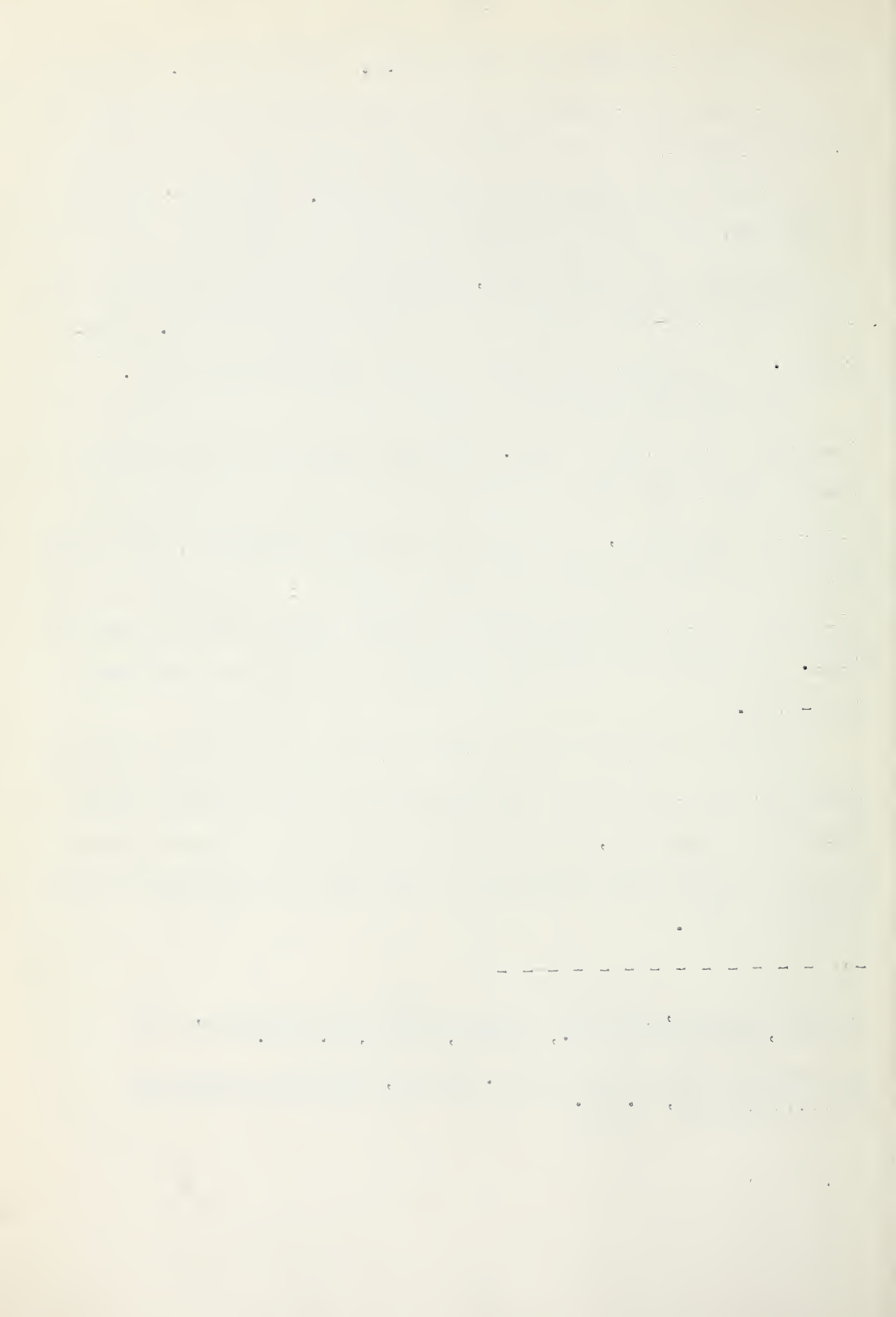
The Canadian and British series in real and money terms increased from 1926 to 1929. Although figures for the United States series were not available to the writer for the period 1926-1928 inclusive, it is known from other sources 2/ that 1929 was also a peak year for the American series. In a sense it is difficult to say that the British money income reached a peak in 1929. It appears to have been rather a plateau for the years 1927-1929.

Canadian money and real gross national expenditure declined from 1929 to 1933 as did the money value of the American gross national expenditure, but recovery in the United Kingdom started one year earlier and British money and real incomes reached their trough in 1932.

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1/ Collin Clark, The Conditions of Economic Progress, (2nd edition, Macmillan & Co., London, 1951), p. 191.

2/ Compare a graph in Alvin H. Hansen, Business Cycles and National Income, p. 33.





British Series-Millions of Int.Un.  
 American Series-Mill.of Dollars.

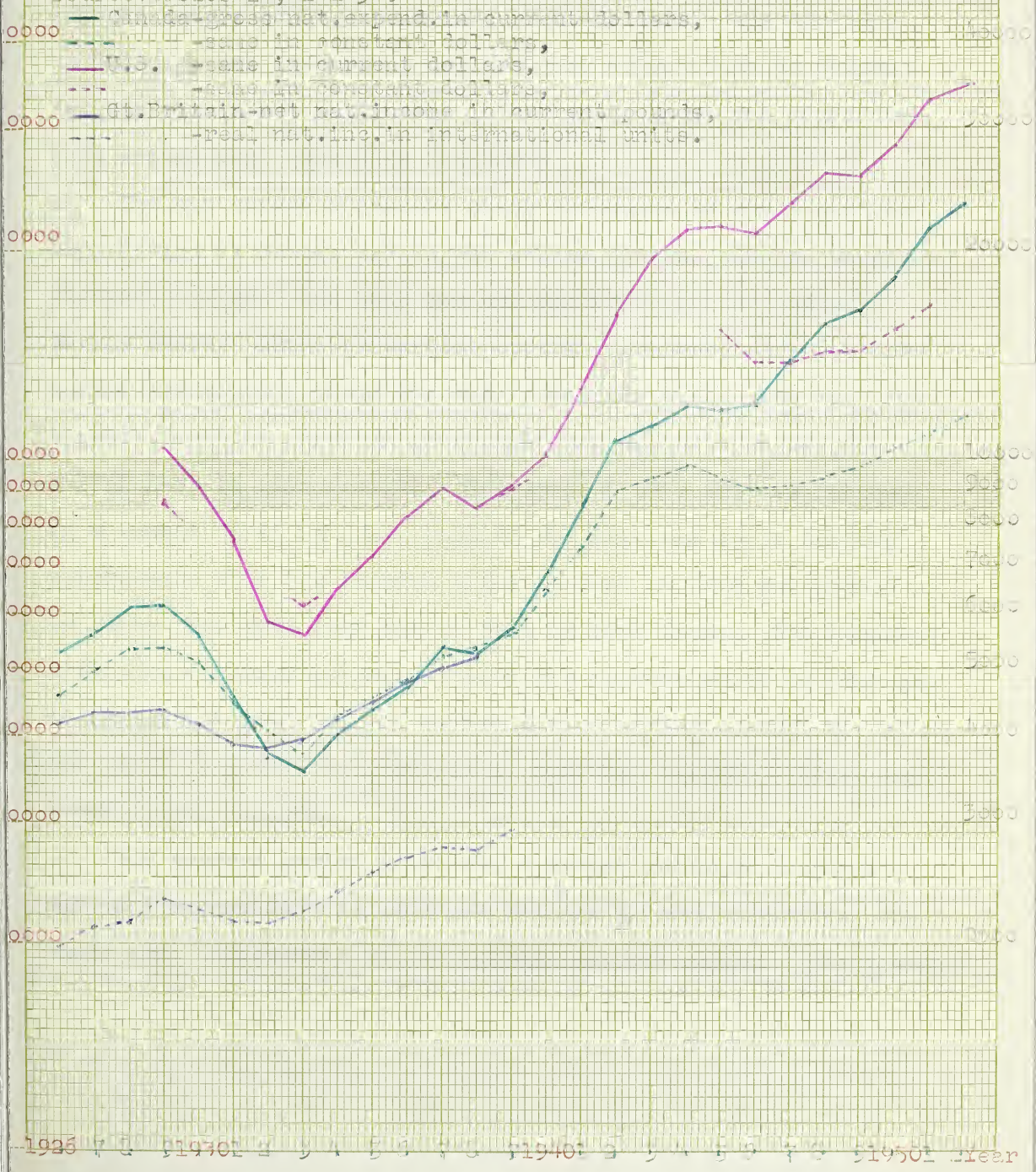
British Series-Millions of Pounds  
 Canadian Series-Mill.of Dollars.

Diagram No.1

Gross National Expenditure, in Millions of Current  
 and Millions of Constant Dollars, Canada and the  
 United States; and Net National Income in Millions  
 of Current Pounds and Real National Income in  
 Millions of International Units, Great Britain, Selected

Years, 1926-1952.

Source: tables 1, 2 & 3.







The expansion of Canadian and American gross national expenditure in current dollars and of British real national income ended in 1937, but that of Canadian gross national expenditure in constant dollars and of British national income in current pounds continued through 1938 and 1939. The declines in Canadian and American gross national expenditure in current dollars were short lived only. The lowest level was reached in 1938 and another expansion followed.

The war period witnessed sharp increases in gross national expenditure in Canada and in the United States. It is, however, difficult to say just when the abnormalities of the wartime period ended. Numerous wartime economic measures were not discarded immediately after the war. Some are still with us. The highest level in Canadian gross national expenditure for the period 1939 to 1946 inclusive occurred in 1944 and was followed by a lowest level in 1945, leading the American gross national expenditure with its highest level reached in 1945 and lowest in 1946. The same lead can be seen in real terms. The Canadian series in constant dollars reached the highest point in 1944 and the lowest in 1945 and the United States series reached the highest level in 1945. Both series in constant dollars reached their lowest level in 1946.

The postwar period witnessed a steady increase in gross national expenditure in constant dollars in both countries, but there were differences in the current dollars series. The Canadian



gross national expenditure in current dollars increased continually but the American exhibited a disturbance from 1948 to 1949. The peak in 1948 was followed by a shallow trough in 1949. From 1949 the movement upwards continued.

The exact timing of turning points was not given by the annual data used here. According to E. Marcus 1/ the upper turning point in 1929 was reached in Canada by the end of March, 1929, and in the United States in June of the same year. Marcus has stated it as follows:

' . . . After the first quarter of 1929 bank debits, which had been exceeding the corresponding months of 1928, started to decline. The drop in wheat and in wheat flour exports hit steamship and railroad earnings, as well as the textile industry through lessened demand for flour sacks. Both newsprint and woodpulp exports, particularly to the U.S., were also below the previous year. As the declines spread, other industries reacted. Pig iron dropped in March. Construction contracts which had been running ahead of the previous year, dropped below in April and May, 1929.

At the end of March stock prices broke sharply both in Canada and the U.S., Canadian prices declining much more . . . . From April on the chronicle is a dreary repetition of recession in the individual Canadian indices. The down turn was now well under way to be followed in June by the U.S. . . . '

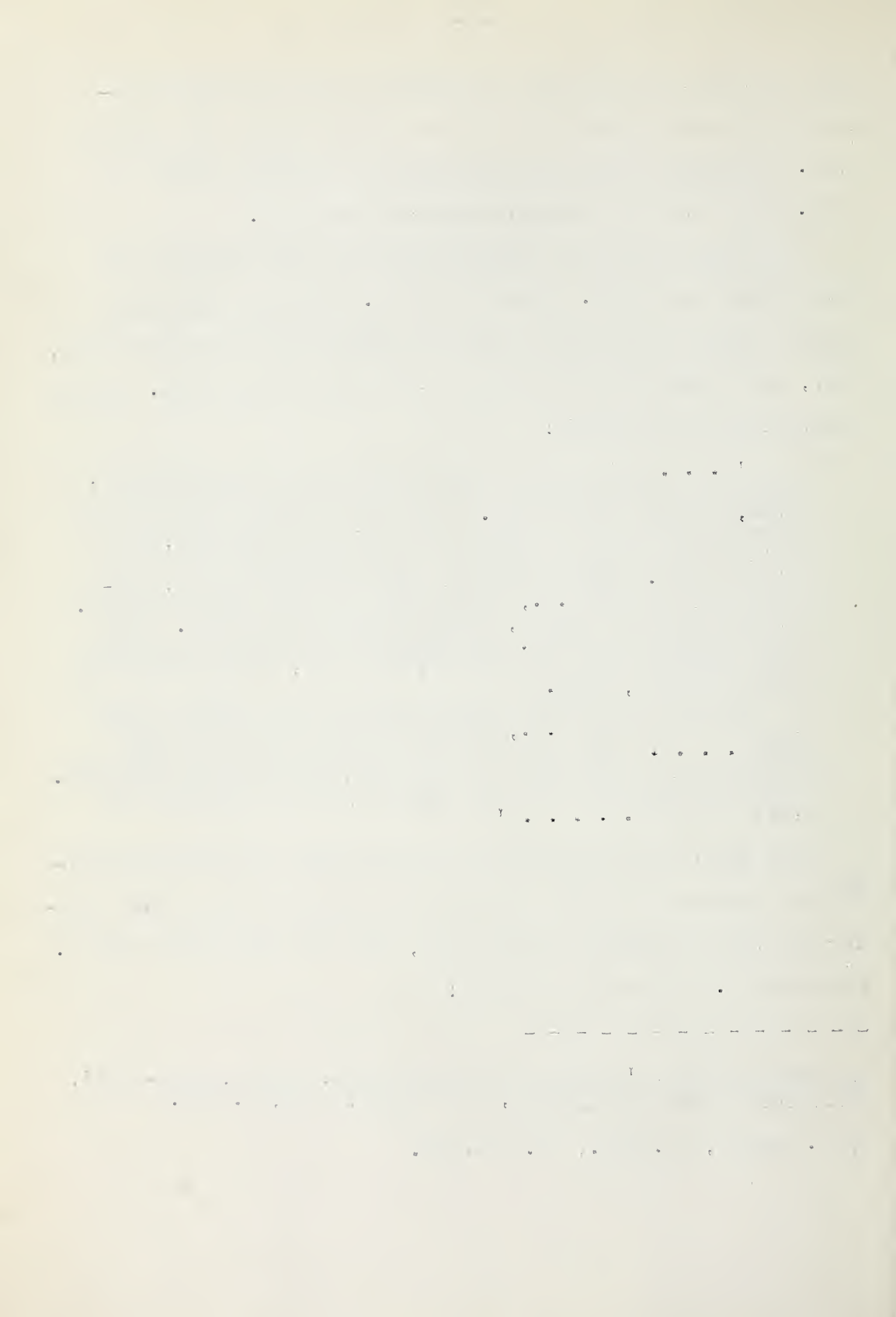
The end of the contraction which started in 1929 was difficult to ascertain exactly but could be located in the first quarter of 1933 for Canada and in March, 1933 for the United States.

Once more E. Marcus 2/ is quoted:

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1/ Edward Marcus, 'Cyclical Turning Points, Canada, 1922-1939', The American Economic Review, (September, 1953), p. 576.

2/ E. Marcus, op. cit., pp. 579-580.





' . . . Coincident with the British recovery the turning point in many Canadian export indices occurred in mid 1932, particularly those for sterling block markets-foodstuffs, nonferrous metals, and automobiles. . . . Then in March, 1933 the American recovery began. This aided Canada both directly, because of the increased buying by Americans, and indirectly, the intangible currents of American business psychology spreading Northward across the border . . . only newsprint exports lagged because American advertising, and thus newsprint consumption, lagged until the last quarter of the year.'

A.E. Safarian 1/ sees things in much the same way:

'There is some evidence to suggest that exports were one of the forces which led the recovery after the first quarter of 1933, and also led the short downswing which began in 1937. Using seasonally adjusted data, it is possible to identify the low point of the index of physical volume of production excluding agriculture in the first quarter of 1933. There was some levelling out in the various series of movements in production in the third quarter of 1932, but the index fell again in the next two quarters. The seasonally adjusted index of export values (excluding gold) levelled out all through 1932 and particularly in the last two quarters. In the first quarter of 1933 exports rose slightly by 1.5 per-centage points, the rise in the remaining quarters of 1933 was faster, carrying the index from 39.0 in the fourth quarter of 1932 to 49.5 in the fourth quarter of 1933 (1935-9 = 100). The index of mining production, which is heavily weighted by export items, began to rise as early as August 1932.'

The next downturn occurred in 1937. It could be located somewhere in the middle of 1937 with the Canadian gross national expenditure leading the American once again. E. Marcus 2/ has

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1/ A.E. Safarian, 'Foreign Trade and the Level of Economic Activity in Canada in the 1930's', The Canadian Journal of Economics and Political Science, (August, 1952, No. 3, Vol. 18, University of Toronto Press), p. 340-1.

2/ E. Marcus, op. cit., p. 581.





this to day concerning the interruption of 1937:

'In a pattern strikingly similar to that before the 1929 turning point, the Canadian recovery ceased before the American cycle reached its peak. Once again there were specific difficulties within the newsprint and wheat sectors that accounted for the turning point within Canada. Canadian wheat and paper indices started to falter several months before the 1937 drop in the United States. The recovery in Great Britain showed signs of hesitation in the latter half of 1936, thus ending the upward movement of Canadian exports to that country. Wheat and wheat flour exports were particularly affected.

Meanwhile, in the United States, perhaps as an advance sign of the recession, newspaper advertising ceased to gain at the beginning of 1937. American newsprint production also stopped increasing. Hence by the early Spring of that year Canadian wood pulp exports to the United States were losing momentum, as had also occurred eight years before . . . . '

A. E. Safarian 1/ sees the downturn in 1937 in the following way:

'The high point in physical volume of production in 1937 was reached in the last quarter of that year although there was not much change in the previous two quarters. Again we find exports and related series like mining production leading this downswing. Exports reached a high point as early as the first quarter of 1937, fell slightly in the second quarter and declined steadily through the next four quarters. (It must be kept in mind, of course, that nonmonetary gold is not included in this quarterly index. Production of gold continued to rise and to provide a special stimulus through this period).

. . . The rise in exports (including gold) in 1937 was \$100 million as compared with a rise of \$235 million in 1936; this \$100 million increase, moreover, was more than offset by a sharp rise of \$164 million in imports . . . . Almost half of the decrease in the value of exports in 1938 was due to lower wheat and flour exports. Other large declines were in wood products, including newsprint, and in nonferrous metals and products.

The lead of exports in 1937 is therefore again apparent.'

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1/ A.E. Safarian, op. cit., pp. 340-1



Much space has been devoted here to the views of E. Marcus and A.E. Safarian. This was done for a purpose, since these writers made use of more refined short period data. The findings of the author using coarser annual data check with those of Marcus and Safarian, but do not stand in such bold relief. In any event, the analysis of turning points suggests the crucial nature of changes in the Canadian exports.

An examination of the intensity of changes in gross national expenditure will be helpful. Expansions and contractions of the American economy seemed to be more extreme than those of Canada. The economy of the United Kingdom was very stable during the late twenties although our data do not reveal whether or not the stability was achieved at a high or a low level of economic activity. It is a well known fact that the United Kingdom suffered from substantial unemployment all through the twenties; hence the stability noted was more a reflection of a slow recovery process than of a uniformly high level of economic activity. The British economy was not nearly so depressed during the Great Depression as was the case in Canada and the United States. The recovery following the depression started one year earlier from a trough in 1932 and was quite strong in the United Kingdom. The Canadian and American economies during the thirties never recovered to the level of 1929 income. The British economy, on the other hand, reached a level well above this. Let us compare the following table.





TABLE

Gross National Expenditure in Canada and the United States and National Income in Great Britain, Selected Years, 1926-1938, in Millions of Current Dollars or Current Pounds and as Relatives (1929 = 100). 1/

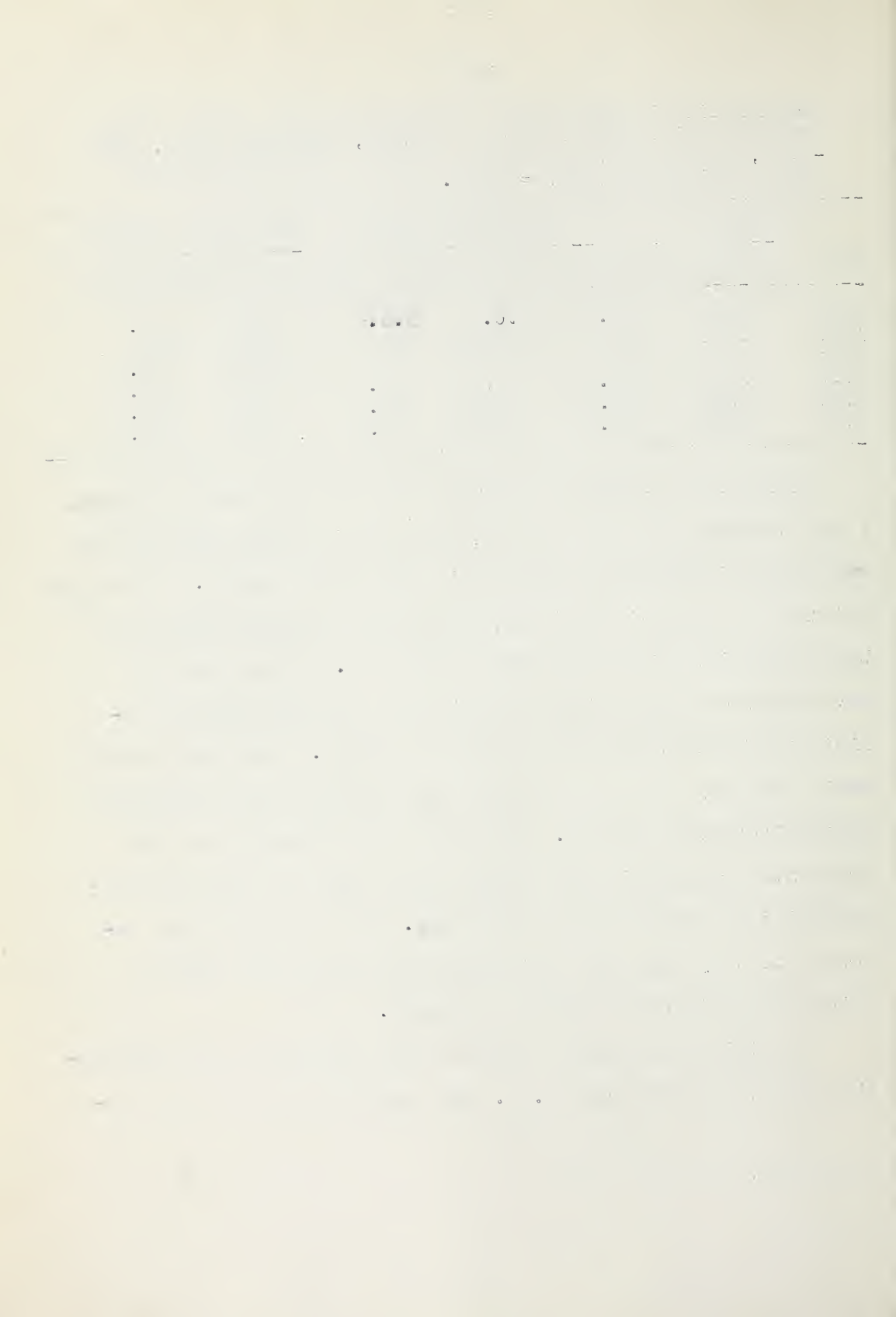
Year	Canada		The United States		The United Kingdom	
	\$000000	Relatives	\$000000	Relatives	£000000	Relatives
1926	5294	85.9	N.c.	N.c.	4148	95.1
1929	6166	100	103828	100	5337	100
1932					4096	87.5
1933	3552	57.3	55760	53.7	3908	89.5
1937	5355	86.8	90213	86.9	4987	114.3
1938	5233	84.9	84683	81.6	5183	118.8

The postwar changes in gross national expenditure revealed a gap between gross national expenditure in money terms and in real terms in Canada as well as in the United States. These gaps pointed to strong inflationary price changes that occurred in both economies after the start of the war. During the war government controls often concealed the progress made by inflation of prices setting artificial levels. After the second world war many of these controls were dropped and consequently prices increased greatly. Korean war expenditures and new armaments programs in the United States and in Canada were accompanied by further price increases. Many controls were imposed but they were more selective and the general level of prices was allowed to increase steeply.

An additional longer trend is also implied by the relationship charted in Diagram No. 1. The plotted gross national ex-

1/ Cf. post tables 1 & 3.





penditure series for the United States and Canada were converging slightly - and this applied to both the real and money series. For instance, the Canadian gross national expenditure in money terms represented 5.9 per cent of the American in 1929, 5.7 per cent in 1946 and 6.6 per cent in 1952. Similarly the Canadian gross national expenditure in real terms represented 6.2 per cent of the American in 1929, 6.5 per cent in 1946 and 6.6 per cent in 1951 despite the fact that the United States was one of the leading countries in its rate of growth. This emphasizes the very high rate of increase in Canadian production and income over the years, and suggests a very optimistic outlook for the future.



## Chapter II. PERSONAL CONSUMPTION OF GOODS AND SERVICES.

Personal consumption expenditure in Canada and in the United States paralleled closely gross national expenditure. Usually contraction or expansion in gross national expenditure was accompanied by contraction or expansion in personal consumption. The only difference to be found was the contraction in Canadian gross national expenditure from 1937 to 1938 accompanied by a further expansion in personal consumption. A similar phenomenon occurred in the 1948-1949 period in the American economy.

Personal expenditure and gross national expenditure in both countries were charted in Diagram No. 2.

For comparison, further information concerning the American personal consumption expenditure from 1926 to 1928 is desirable. According to A.H. Hansen <sup>1/</sup> this period was one in which both personal consumption expenditure and gross national expenditure expanded.

Diagram No. 2 indicates that personal consumption expenditure was more stable than was gross national expenditure. To indicate the range of change, relatives of personal consumption expenditure have been calculated. These relatives reveal that changes in American personal consumption expenditure were more extreme than were the Canadian. No figures were given for the postwar period since the base values for 1929 can hardly be

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<sup>1/</sup> Alvin H. Hansen, op. cit., p. 88.





Millions of Dollars  
U.S. series

Millions of Dollars  
Canadian series.

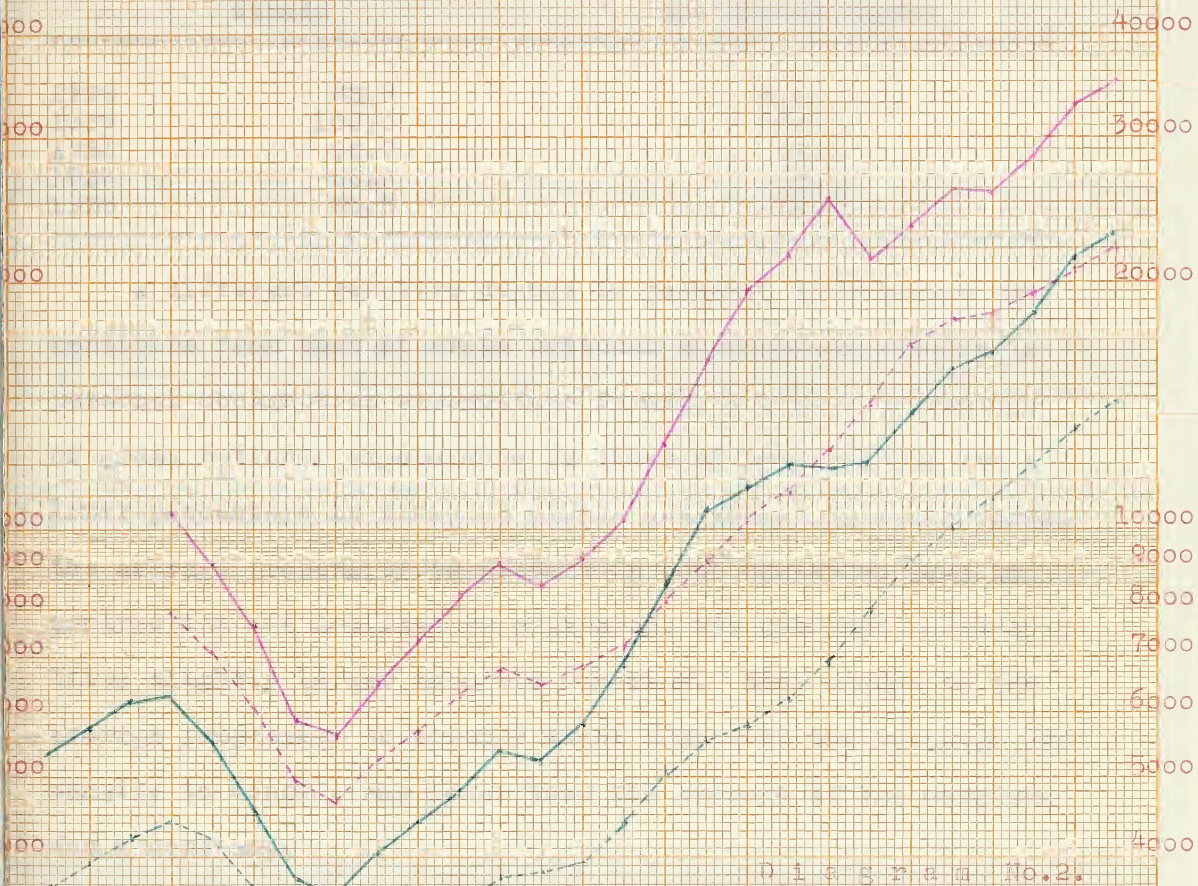


Diagram No. 2.  
Gross National Expenditure and  
Personal Consumption, Canada and  
the United States, 1926-1952.  
In Millions of Current Dollars.  
Source: U.S. B. S.  
— Canada - gross national expenditure.  
--- Canada - personal consumption.  
— U.S. - gross national expenditure.  
--- U.S. - personal consumption.

1926 7 8 9 1930 1 2 3 4 5 6 7 8 9 1940 1 2 3 4 5 6 7 8 9 1950 1 Year





comparable to values and conditions ruling following the war.

TABLE

Personal Consumption Expenditure, Canada and the United States, Selected Years, 1926-1938, as Relatives (1929 = 100). Calculated from Data in Current Dollars. 1/

Year	Personal Consumption Expenditure, Canada	Personal Consumption Expenditure, The United States
1926	83.9	N.c.
1929	100.0	100.0
1933	65.7	58.8
1937	86.0	85.2
1938	86.8	81.9

A different relative change in personal consumption expenditure from that of gross national expenditure results in personal consumption expenditure forming a higher percentage of gross national expenditure in times of low activity and a lower percentage in times of higher activity. In other words, the average propensity to consume in both countries rose in contraction and declined in expansion; the American propensity being slightly larger than the Canadian. Such change in the average propensity to consume meant also that the marginal propensity to consume was lower than the average if the marginal was a constant.

In the postwar period the average propensity to consume apparently shifted downwards to a substantially lower level. Other components must now form a greater part of gross national expenditure. Also the pattern of change in average propensity to consume as calculated from current dollars data was difficult

1/ Cf. post tables 4 & 5.



to establish for postwar years. The figures indicate that the marginal propensity to consume could not have been a constant in this period.

TABLE

The Average Propensity to Consume, Canada and the United States, Selected Years, 1926-1952. Original Data Measured in Current Dollars. 1/

Year	Average propensity to consume, Canada	Average propensity to consume, The United States
1926	81.1	N.c.
1929	71.2	75.9
1933	81.3	83.1
1937	70.5	74.4
1938	72.9	76.2
-----		
1946	66.3	67.2
1948	64.8	68.7
1949	66.6	70.0
1950	66.1	68.5
1952	62.1	62.7

As such calculations, based on current dollars series, may not have revealed the true pattern of change in personal consumption expenditure an attempt was made to compute the average propensity to consume from data in constant dollars.

1/ Cf. post tables 4 & 5.



TABLE

The Average Propensity to Consume, Canada and the United States, Selected Years, 1926-1951. Raw Data Measured In Millions of Constant Dollars (1925-9 = 100). Average Propensity as a Percentage.

Year	Canada 1/			The United States 2/		
	Gross nation. expend.	Pers. consum. expend.	Aver. propens. to cons.	Gross nation. expend.	Pers. consum. expend.	Aver. propens. to cons.
1929	5337	3685	69.0	85900	62200	72.4
1933	3772	3055	82.9	61500	51100	83.1
1939	5664	3820	67.4	91300	67500	73.9
1946	9045	6189	68.4	138400	95700	69.2
1948	9438	6368	67.5	145500	100300	69.9
1949	9722	6612	68.0	144000	103200	71.7
1950	10330	7022	68.0	154800	108500	70.1
1951	10899	6991	64.1	167300	108400	65.0

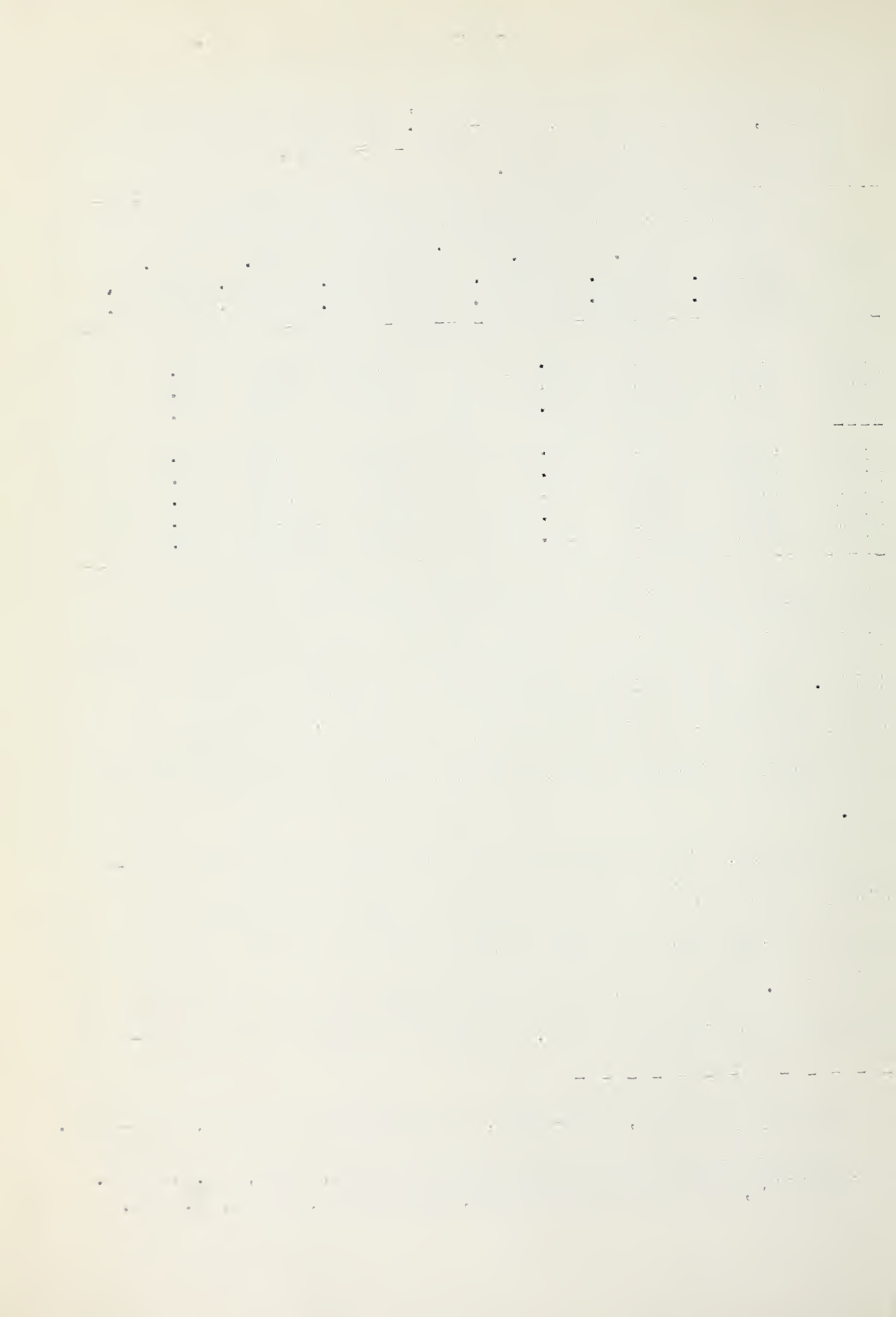
The postwar shift in the average propensity to consume was visible also here though it was not so large as in the previous table. The propensities calculated from data in current and constant dollars declined steeply in 1951 which undoubtedly would reflect increased government spending due to the Korean war.

The 1949 rise in the average propensities to consume indicated the tendency of personal consumption expenditure to form a larger part of gross national expenditure in periods of recession. Although the Canadian gross national expenditure continued to rise that year, the rate of change declined in-

1/ National Accounts, 1926-1950, and National Accounts, 1949-1952.

2/ Statistical Abstract of the United States, 1952, (U.S. Dept. of Commerce, Bureau of the Census, Washington, 1952), p. 254.





dicating a change corresponding to the recession that was distinctly visible in the American economy.

Personal consumption expenditure can be studied in more detail as it has been divided into expenditure on durable goods, nondurable goods and services. Diagram No. 3 gives the Canadian components, and Diagram No. 4 the American components of personal consumption expenditure. A comparison of the diagrams indicates that changes in the Canadian components resembled changes in the American. The most volatile component of personal consumption expenditure was the consumption of durable goods, and the least volatile, the consumption of services. There appears to be a tendency for the latter to decline in importance in the long run.

The following table gives relative changes in these components. The letter 'C' stands for the Canadian economy and the letter 'A' for the American.

TABLE

Components of Personal Consumption Expenditure, Canada and the United States, Selected Years, 1926-1938, as Relatives (1929 = 100). Calculated from Data in Current Dollars. 1/

Year	Durables		Nondurables		Services	
	C	A	C	A	C	A
1926	72.1	N.c.	83.8	N.c.	87.1	N.c.
1929	100.0	100.0	100.0	100.0	100.0	100.0
1933	39.3	37.4	65.4	59.0	73.0	65.0
1934					72.7	
1937	80.0	74.8	87.6	93.4	84.7	78.6
1938	75.2	61.4	87.2	90.2	89.1	78.1

The range of change indicates that all American components were slightly more volatile than were the Canadian but the

1/ Cf. post tables 4 & 5.



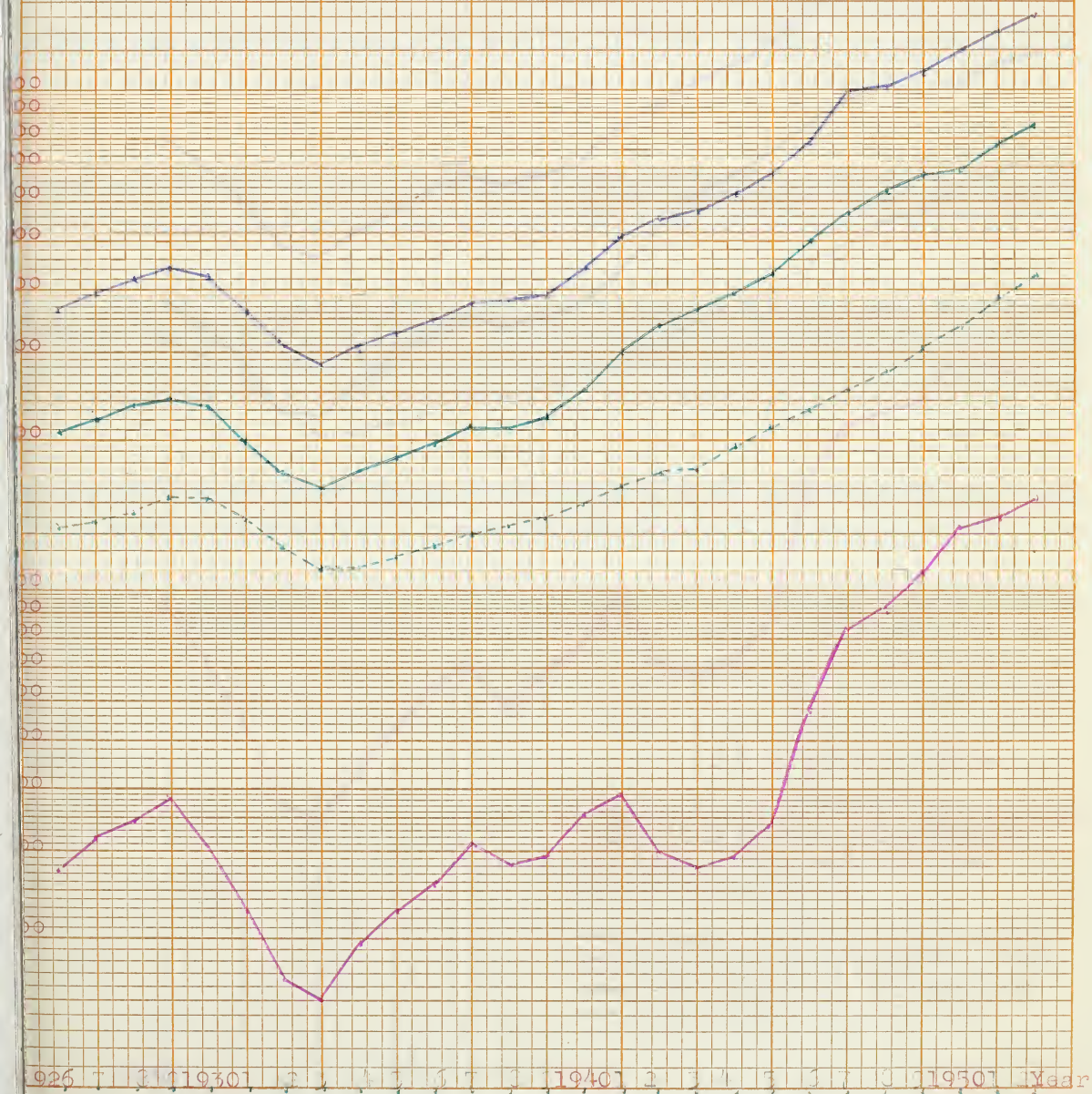
Millions of Dollars.

Diagram No.3.

Components of Personal Consumption,  
Canada, 1926-1952. In Millions of Current  
Dollars.

Source: table 4.

- personal consumption/total/,
- consumption of durable goods,
- consumption of non-durables,
- consumption of services.

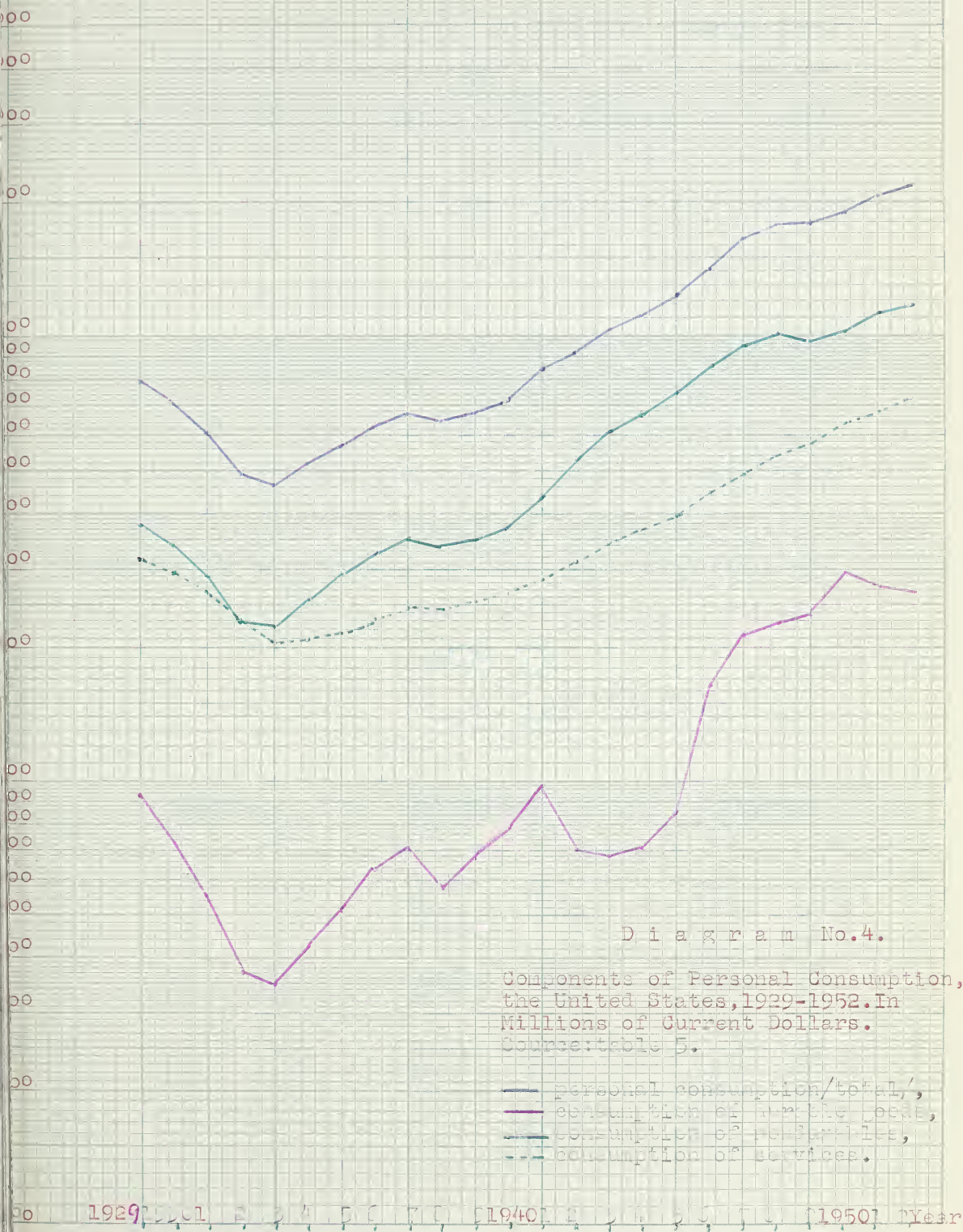








Millions of Dollars.





difference was rather small in consumptions of durables. In addition the swing downwards from 1937 to 1938 was greater in the American components than in the Canadian. Consumption of services differed in timing as well. The American consumption of services reached the lowest level in 1933 and the Canadian in 1934 but the decline in the latter from 1933 to 1934 was very slight. In 1938 the Canadian series did not decline at all as did the American, but here again the decline in the American series was very slight.

If these components were expressed as percentages of gross national expenditure in current dollars, the impression is received that the changes in the two economies resembled each other although Canadians spent their money in a little different way. The following table gives the percentages including figures for the postwar period. Once again, the letter 'C' stands for Canada and the letter 'A' for the United States.

TABLE

Components of Personal Consumption Expenditure, Canada and the United States, Selected Years, 1926-1952, as Percentages of Gross National Expenditure. Calculated from Data in Current Dollars. 1/

Year	Durables		Nondurables		Services	
	C	A	C	A	C	A
1926	5.3	N.c.	39.0	N.c.	25.5	N.c.
1929	6.1	9.0	39.8	36.3	25.1	30.5
1933	4.2	6.3	45.3	39.9	31.7	36.9
1934					27.9	
1937	5.8	7.8	40.2	39.0	24.5	27.6
1938	5.6	6.8	41.0	40.2	26.3	29.2
----						
1946	4.9	7.9	42.2	40.7	19.2	21.1
1948	5.8	8.8	41.4	38.9	17.5	20.9
1949	6.2	9.3	41.3	38.4	18.7	22.4
1950	7.4	10.3	39.1	36.2	18.7	22.0
1952	6.8	8.0	36.5	31.3	19.0	20.9
-----						

1/ Cf. post tables 1, 4 & 5.



The declining long term trend in consumption of services is apparently due to the development of service-replacing consumption goods as a growth in wealth might be expected to bring an increase in this category of consumption. The greater proportional consumption of services in the United States is probably due to its higher per capita income although distribution of income is of great significance.

The figures also indicate that there was a rising trend in the consumption of durables in Canada which may be due to an increase in Canadian incomes, and also to the adoption of goods that had earlier entered into consumption in the United States.





### Chapter III. GOVERNMENT SPENDING

The series for government spending in Canada and the United States were not well correlated with the respective gross national income series. United States government spending lagged behind gross national expenditure with a peak in 1931, a trough in 1933 and a peak in 1936. A decline in 1937 came to an end with the recession of 1938. The American government then stepped up its spending which later culminated in very substantial war spending.

Canadian government spending increased from 1926 to 1930, again lagging behind the upper turning point in gross national expenditure which occurred in 1929. The decline in the government spending series lasted until 1933. Thereafter the series increased at a moderate rate, after which time public spending increased sharply for war purposes.

In the immediate post-war period, government spending decreased substantially from wartime levels. A new trough was reached in Canada and in the United States in 1947 followed by sharp increases interrupted by a disturbance for the 1949-1950 period in the American series. The Canadian series increased from 1949 to 1950 but at a reduced rate of increase. The money levels of government spending attained in 1952 approached previous war-time levels. This was not the case for the real value of government spending, however, due to substantial postwar increases in the price level.



A comparison was also made between the relative rates of change in government spending and gross national expenditure for the two countries. Here it was found that at the end of the thirties government spending increased more than in proportion to total expenditures in both countries.

Diagram No. 5 illustrates Canadian and United States government spending plotted on semilogarithmic graph.

As in the preceding chapter the range of change will interest us.

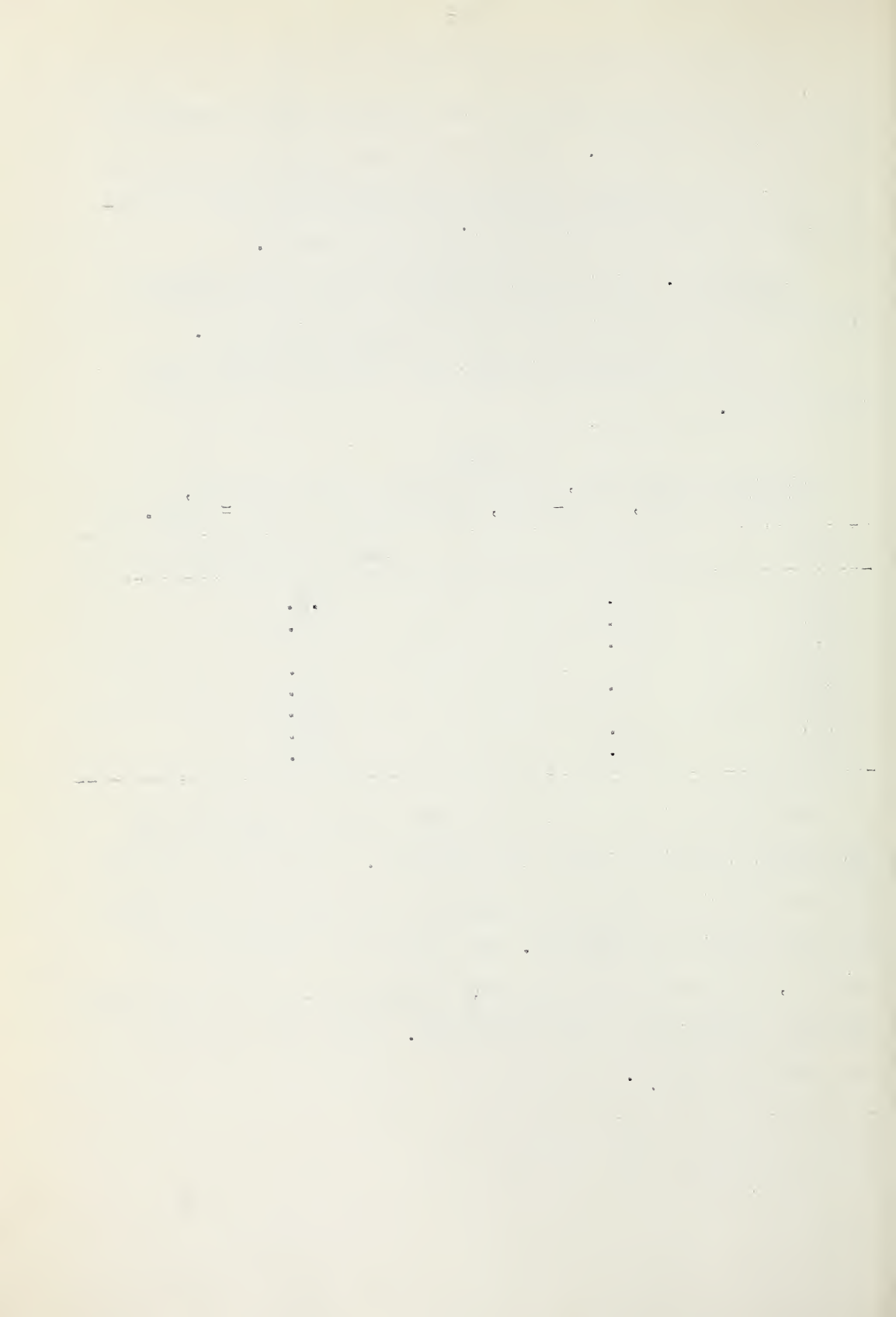
TABLE

Government Spending, Canada and the United States, Selected Years, 1926-1938, as Relatives (1929 = 100). 1/

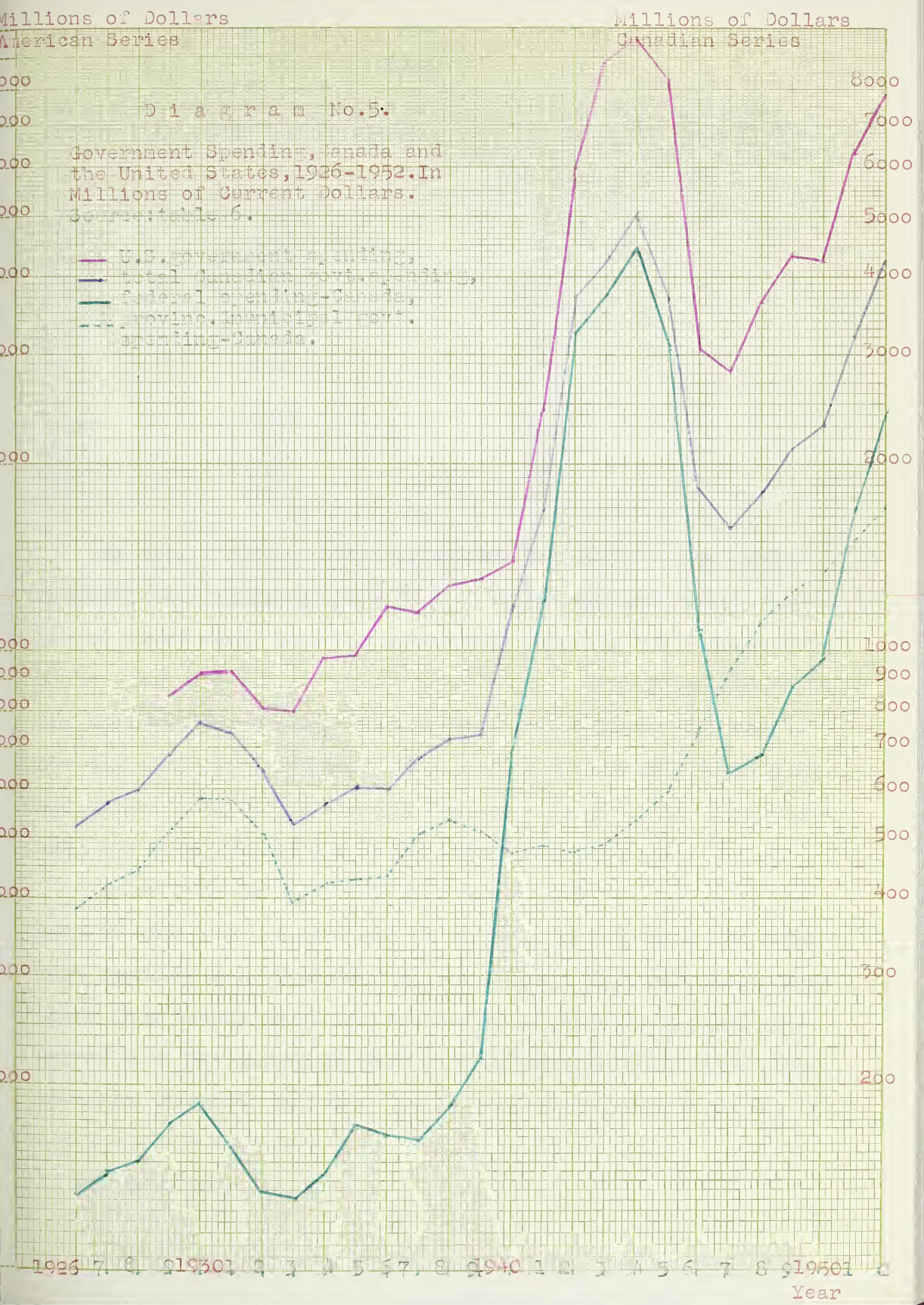
Year	Canada	The United States
1926	76.9	N.c.
1929	100.0	100.0
1930	112.4	
1931		108.8
1933	77.1	93.9
1936		138.6
1937	98.4	136.8
1938	105.6	150.5

The above figures reveal the size of the expansion in government spending during the thirties. It is also evident that the American government expanded its spending more than did the Canadian government. To judge this expansion more readily, government expenditures as a percentage of total gross national expenditure were calculated. These are reproduced in the table to follow.

1/ Cf. post table 6.









TABLE

Government Spending, Canada and the United States, Selected Years, 1926-1952, as Percentages of Gross National Expenditure. 1/

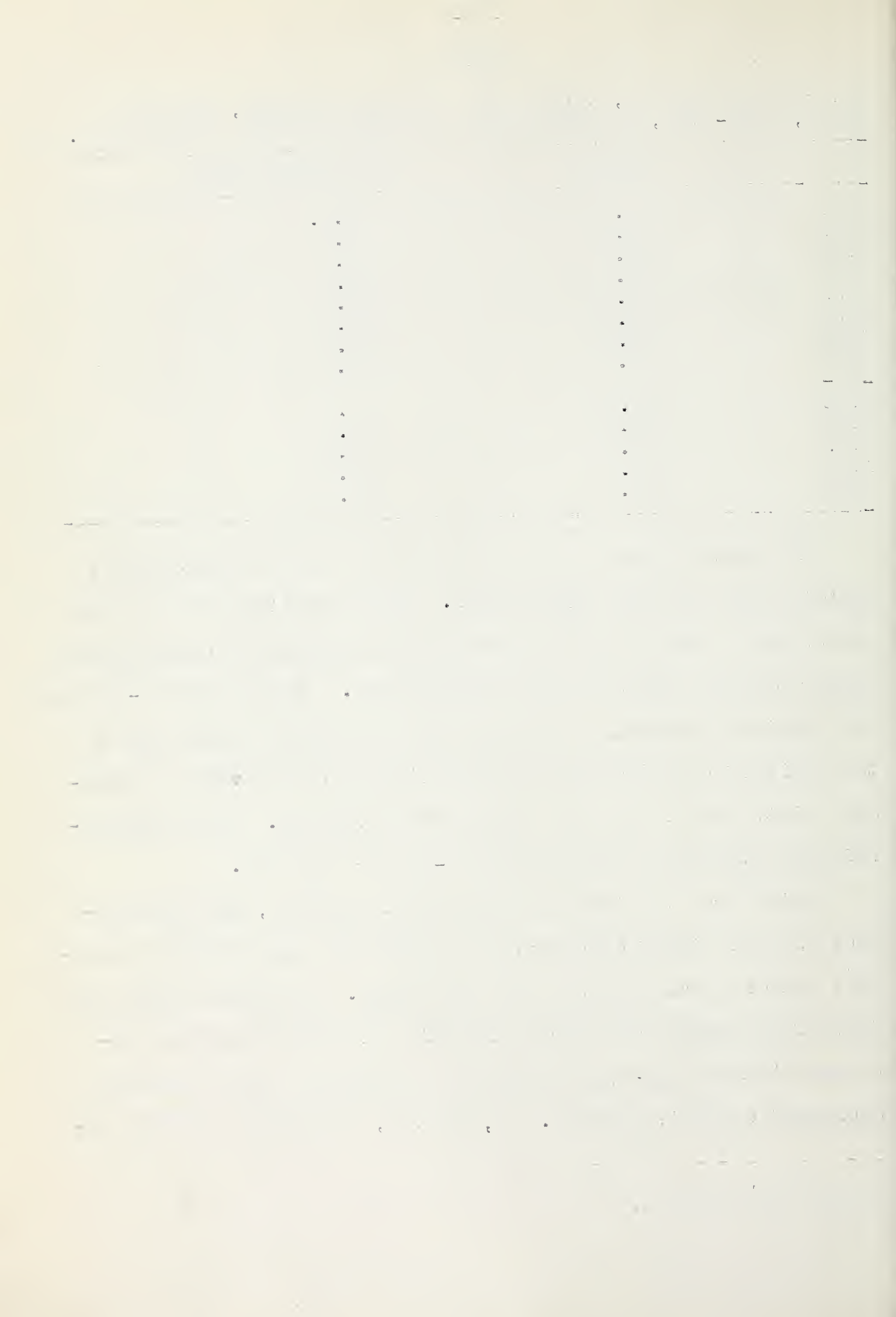
Year	Canada	The United States
1926	9.8	N.c.
1929	11.0	8.1
1930	13.8	10.1
1931	16.2	12.1
1933	14.8	14.3
1936	12.8	14.2
1937	12.5	12.8
1938	13.8	15.1
----		
1946	15.2	14.6
1948	11.5	14.1
1949	12.9	16.9
1950	12.7	15.0
1952	18.3	22.3

The above figures reveal how much the share of government spending has increased since 1929. In the earlier years of the period under study Canadian government spending was comparatively higher than the United States counterpart. During the mid-thirties the American government spending increased more rapidly and on the basis of our percentage calculations became several percentage points higher than the Canadian counterpart. This relationship has persisted during the post-war era as well.

Aside from the level of government spending, the other aspect of some significance has to do with the way in which government spending was financed over the years. If public funds were drawn from income receivers a transfer of purchasing power occurred with the aggregate amount of purchasing power remaining unchanged caeteris paribus. If, however, government spending ex-

1/ Cf. post table 6.





ceeded government revenue and a deficit occurred ( in fact a new credit expansion) additional purchasing power was created and introduced into the national economy. If, instead, a surplus occurred then purchasing power would have been annihilated to the amount of that surplus.

In times of contraction in national income aggregate purchasing power is normally declining and a gap may exist between the amount of goods and services capable of being produced in the economy and the amount of purchasing power available to buy such goods at prices adequate to producers. Usually this shortage of purchasing power is created by liquidation of private debts, and here government deficit spending by new credit expansion may assist in countering the deflation in private sector. The opposite effects might be expected to hold in the case of a budgetary surplus.

The conscious use of alterations in public taxation and spending policies in this way was not well recognized prior to the decline of the thirties. A presumption appeared to be widespread that the state should adhere to 'sound financial' practices judged against private standards. This normally implied striving for a balanced budget or for a reasonable surplus. In deflationary periods, perhaps fortunately, it was frequently impossible to achieve such a goal due to greater rigidities in public expenditure than in revenues. Due partly to this difficulty and partly to conscious deficit fiscal planning,





budgetary deficits increased and persisted throughout practically the whole period of the thirties. The income effects of the deficits, however, are difficult to assess quantitatively.

It is, of course, not only the immediate addition to purchasing power that counts. If no offsetting cut in spending develops in other parts of the economy then an injection of purchasing power by public deficit spending must increase the national income according to the multiplier effect. For practical reasons let us assume a marginal propensity to consume of 0.6 or a final effect 2.5 times greater than the initial injection. Time will be needed for the effects to work out, but the first several periods will realize the greatest change.

Diagram No. 6 illustrates the size of government deficits and surpluses during the thirties in Canada and the United States. Canadian deficit spending increased sharply from 1929 to 1931, declined to 1933, levelled off until 1935 and declined to nearly zero in 1936. This level was maintained in 1937 and when another recession occurred from 1937 to 1938 the deficit was once again increasing. One would like to know if the changes in gross national expenditure were related to changes in deficit spending and if such changes could have resulted from straight multiplier action.

The theoretical results of multiplier action of government deficit spending in Canada are given in Appendix A. The





Millions of Dollars  
American Series

Millions of Dollars  
Canadian Series

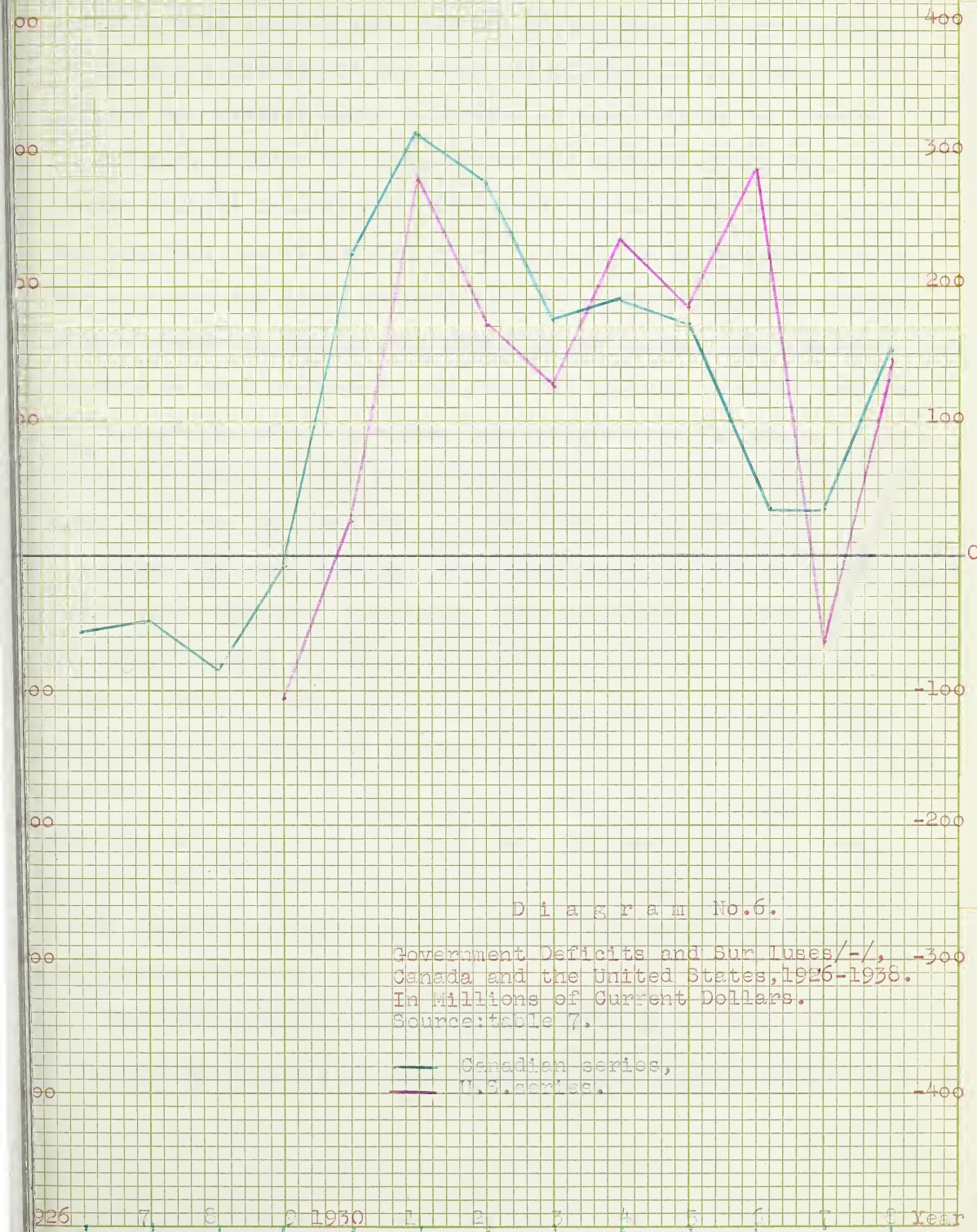


Diagram No.6.

Government Deficits and Surpluses/-/, -300  
Canada and the United States, 1926-1938.  
In Millions of Current Dollars.  
Source: table 7.

— Canadian series,  
— U.S. series.

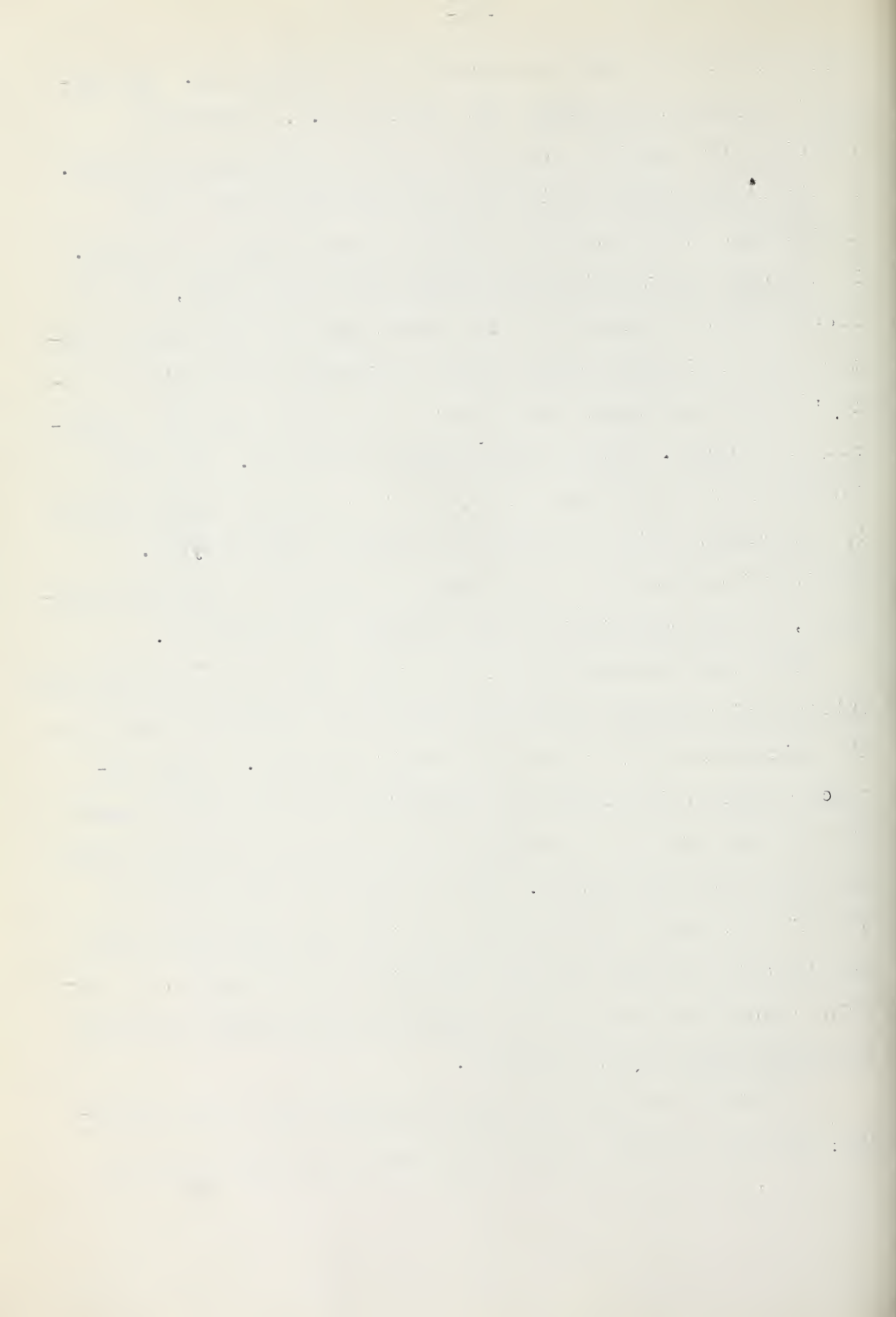




calculations were based on certain rigid assumptions. The marginal propensity to consume was taken as 0.6. Government deficits were applied each quarter of the year proportionately. In the first quarter of the year one quarter of the yearly deficit was assumed spent to create an equal amount of income. In the next quarter the same amount was assumed spent, but the income created consisted of the amount spent in the second quarter plus the income created by the recipients of the first quarter's income and spent according to the assumed marginal propensity to consume. And so the procedure continues. By adding incomes to four quarters of the year the aggregate income created by government deficit spending was computed for the year. American income created by government spending was computed similarly, and the calculations are set forth in Appendix B.

From such computations it is evident that during the thirties substantial amounts of income may have been created in Canada and the United States by running government deficits. In the absence of such a bolstering of purchasing power one might expect that the deep decline in economic activity in the thirties would have been much more severe. This is based on the assumption that the government deficits did not influence adversely other determinants of gross national expenditure (for example, by lowering exports in Canada or by lowering the propensity to invest in Canada and the United States).

A further question that might be posed here is the following: were the effects of government spending strong enough to



influence visibly the fluctuations in gross national expenditure? For Canada, the answer appears to be negative. The lowest income generated by government deficit according to our assumptions occurred in 1937 whereas the gross national expenditure increased the most in that year. One might have expected this result. Government spending in an open economy can be heavily neutralized by opposite changes in exports and the balance of trade. These changes can be magnified by foreign trade multiplier just as the government deficit spending is affected by the internal multiplier.

Government deficit spending in the United States was relatively stronger than in Canada and much steadier especially from 1931 to 1936. Due to a more closed type of economy, any internal measures to increase the purchasing power were not so handicapped by large leakages through increased imports. Similarly, a decline in economic activity coming from abroad could not reach out so readily into the United States since the American balance of trade represented such a small percentage of gross national expenditure. Hence the only sizeable offset to government deficit spending could arise from the adverse influence which such spending might have on private investment inside the United States. Although this possibility cannot be excluded the figures computed in Appendix B suggest that the correlation between the fluctuations in American gross national expenditure and government deficit spending might have been positive. The following table provides the approximate figures for the United States in millions of dollars.





TABLE

Income Created by Government Deficit Spending and Gross National Expenditure, the United States, 1930-1938, in Millions of Current Dollars.

Year	Income Created by Deficit Spending		Gross National
	Aggregate 1/	Change from preceding year	Expenditure Change from preceding year
1930	432.74	-	-12971
1931	4894.37	+4461.93	-14927
1932	4892.14	- 2.23	-17590
1933	3626.69	-1265.45	- 2580
1934	5060.6	+1433.37	+ 9108
1935	4857.07	- 202.99	+ 7325
1936	6379.66	+1522.59	+10290
1937	1090.42	-5289.24	+ 7730
1938	2336.04	+1245.62	- 5530

If we omit the years up to 1933 when the impact of government spending might not have been strong enough to offset the declines in other components of gross national expenditure (for example, in private investment), we find a close relationship between changes in aggregate income created by government deficit spending and in changes in gross national expenditure. A decline in aggregate income created by deficit spending would appear to have lowered the pace at which gross national expenditure was increasing since 1933. The situation was disturbed once again in 1938 as gross national expenditure declined a year later than the substantial reduction in government deficit in 1937.

1/ Cf. post Appendix B.





#### Chapter IV. GROSS DOMESTIC INVESTMENT.

Gross domestic investment in Canada and gross private domestic investment in the United States (the latter excluding investment in government businesses) were the most volatile of the components of gross national expenditure; of the two, the American investment was the more unstable. Diagram No. 7 shows the American gross private domestic investment and the Canadian gross domestic investment plotted on semilogarithmic graph.

While the total investment in the two countries did not show any great differences, components of investment did. These components are charted in Diagrams No. 8 & 9. New private residential construction activity and new private nonresidential construction activity are not true components of American gross private domestic investment but only an approximation to their Canadian counterparts. Changes in inventories were not shown on these graphs.

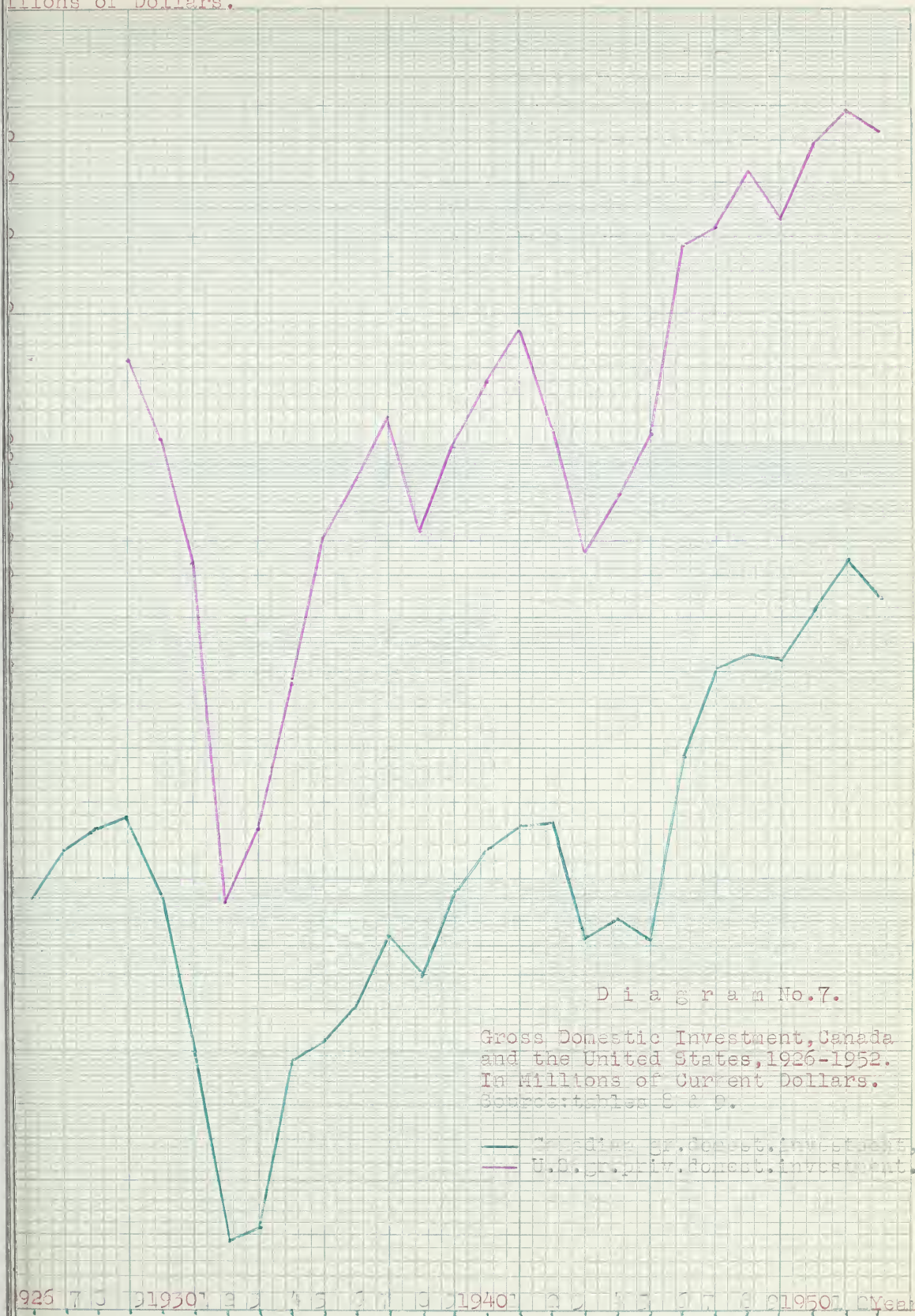
Changes in the components of American investment before 1929 were of special interest as changes in Canadian components were available starting in 1926 rather than in 1929 1/. From other sources we know that private residential construction in

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1/ Alvin H. Hansen, Business Cycles and National Income, p. 84.



llions of Dollars.









Billions of Dollars.

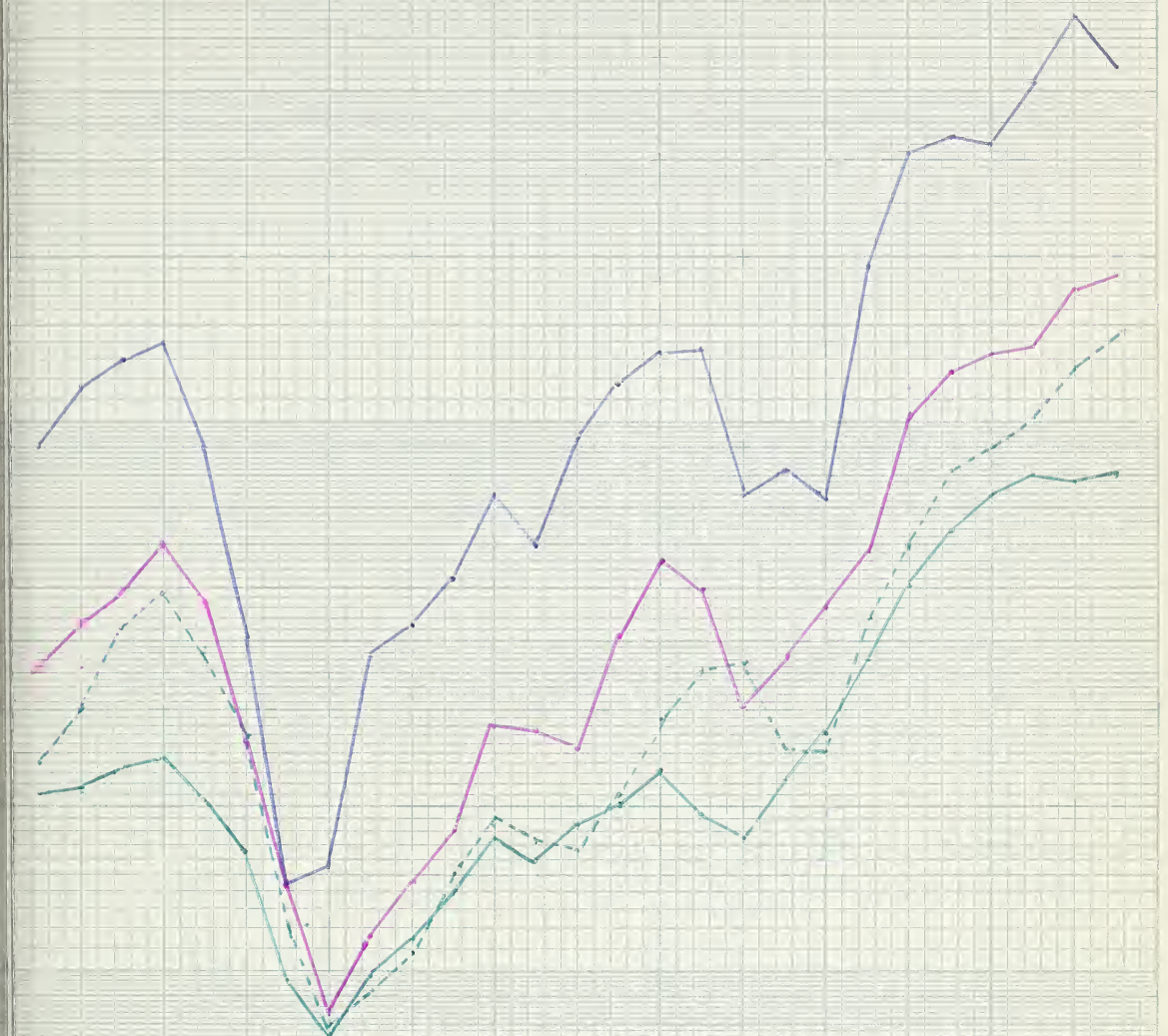


Diagram No. 6.

Components of Gross Domestic Investment/change in inventories excluded/, Canada, 1926-1952. In Millions of Current Dollars. Source: Table 9.

— Gross investment in machinery and equipment,  
— Investment in buildings,  
— Investment in transport equipment,  
- - - Investment in other fixed capital.

1926 7 8 1930 1 2 3 4 5 6 7 8 1940 1 2 3 4 5 6 7 8 1950 1 2 3 4 5 6 7 8 1952, year





Millions of Dollars.

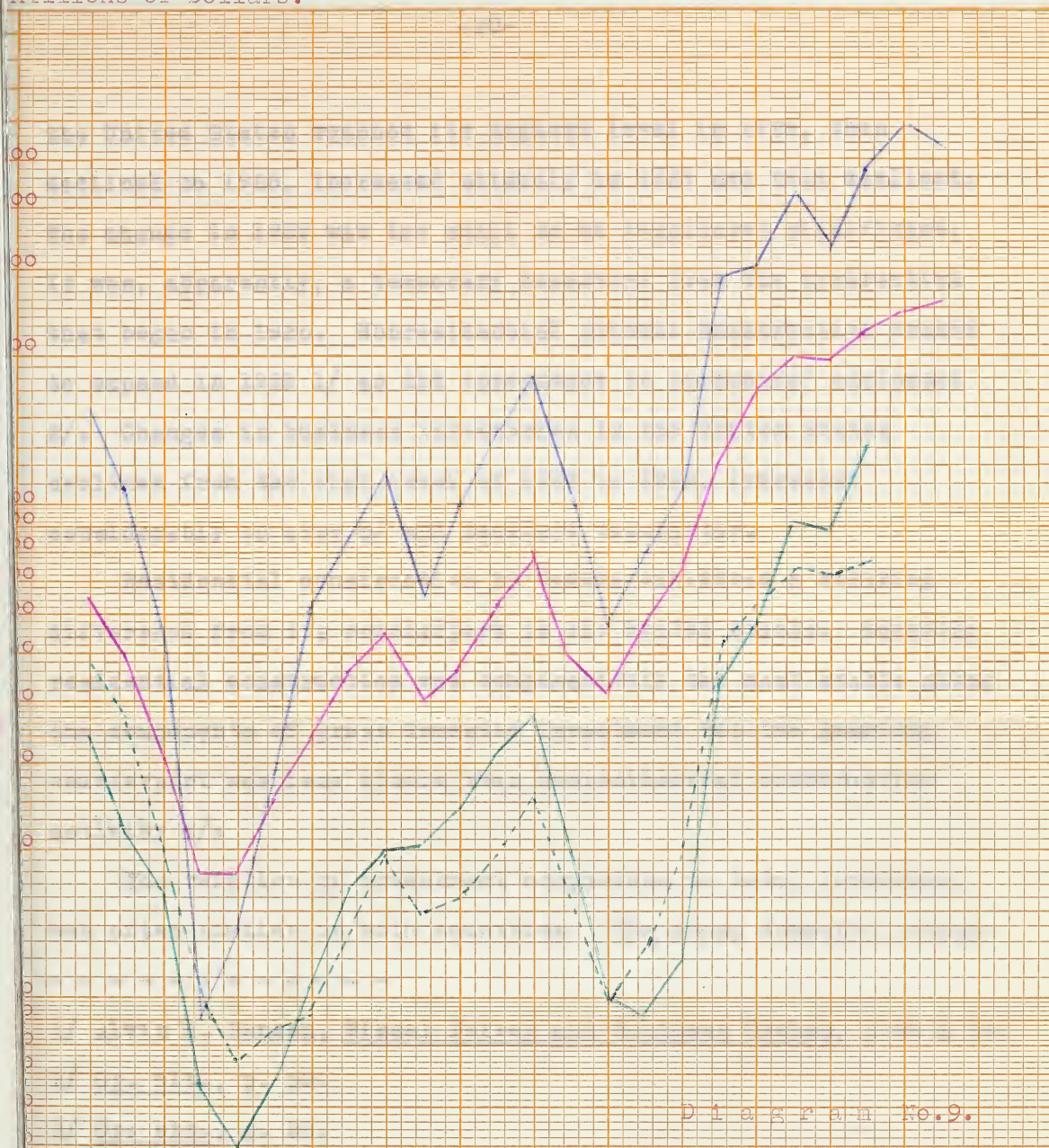


Diagram No.9.

Components of Gross Private Domestic Investment/changes in business inventories excluded/, the United States, 1929-1952. In Millions of Current Dollars.  
Source: tables 9 & 10.

— GP. private dom. investment,  
— productive durable equip.,  
— new priv. resid. construct. activ.,  
-- new priv. nonres. constr. activity.

1929 30 1931 32 34 36 38 40 1941 42 44 46 48 1950 51 52 Year





the United States reached its highest level in 1926, then declined to 1928, increased slightly in 1929 and then declined. The change in 1929 was too small to be considered significant. It was, apparently, a temporary departure from the contraction that began in 1926. Nonresidential private construction ceased to expand in 1929 1/ as did investment in producers' equipment 2/. Changes in business inventories in the United States declined from the high level of 1925 to 1928, increased considerably in 1929 3/ and declined thereafter.

Residential construction in Canada exhibited a striking difference from its counterpart in the United States. Canadian residential construction was comparatively the most stable among the components of gross domestic investment but the American counterpart was less stable than nonresidential construction activity 4/.

The relation of investment components to total investment was often similar in both countries. The gross domestic invest-

1/ Alvin H. Hansen, Fiscal Policy and Business Cycles, p.53 & 56.

2/ Op. cit., p. 53.

3/ Op. cit., p. 56.

4/ Cf. table 7.



The following table shows the results of the

experiments conducted in the laboratory.

The results are given in the following table.

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ment increased from 1932 in both countries but in both cases changes in inventories were responsible as all other components of investment continued to decline in 1933. Certain similarities occurred in the components during the short recession of 1937-1938. The gross domestic investment in both countries declined in 1938 but some of the components did not follow this movement. The American new private residential activity did not decline at all in 1938, although its rate of increase declined. In Canada all components of investment declined in 1938 and the decline in investment in new machinery and in new nonresidential construction continued until 1939.

In the postwar period, Canadian gross domestic investment declined in 1949 but as in 1933 this was due for the most part to a decline in inventories since the other three components of investment increased. The relative change in investment and its components during the thirties is given in the following table.

TABLE  
Gross Domestic Investment and Its Components, Other than Change in Inventories, Canada, Selected Years, 1926-1939, as Relatives (1929 = 100). 1/

Year	Gross domestic investment	Resident. constr.	Nonres. constr.	Machinery & equipment
1926	64.3	85.4	49.4	59.8
1929	100.0	100.0	100.0	100.0
1932	10.5			
1933	11.3	30.8	16.3	14.1
1937	53.1	71.3	39.1	47.1
1938	42.6	64.4	35.2	46.1
1939			34.1	42.5

1/ Cf. post table 8.



TABLE

Gross Private Domestic Investment and its Components, Other than Change in Business Inventories, the United States, Selected Years, 1926-1938, as Relatives (1929 = 100). 1/

Year	Gross private domestic investment	Resident. constr. activity	Nonres. constr. activity	Producers' durable equipment
1926	N.c.	N.c.	N.c.	N.c.
1929	100.0	100.0	100.0	100.0
1932	5.6			27.7
1933	8.3	14.3	15.2	27.7
1937	72.3	56.8	39.9	84.6
1938	39.9	59.5	30.9	61.7

A comparison of these tables of Canadian and American data reveals that American investment tended to be more volatile than that in Canada except for the new investment in machinery and equipment. When investment and its components are expressed as percentages of gross national expenditure we may judge the relative importance of the components in the national economy.

1/ Cf. post tables 9 & 10.





Gross Domestic Investment and Its Components, Canada,  
Selected Years 1926-1952, as Percentages of Gross  
National Expenditure. Original Data in Current Dollars 1/.

Year	Gr. dom. investm.	Resident construct.	Nonres. constr.	Machinery & equipment	Change in inventories
1926	16.9	4.0	4.5	6.7	+1.7
1927					+3.7
1929	22.6	4.0	7.9	9.7	+1.9
1931					-6.3
1932	3.9				
1933	4.4	2.1	2.2	2.3	-2.3
1934					+1.7
1935	9.8				-1.1
1936	11.0				
1937	13.8	3.3	3.6	5.3	+1.7
1938	11.4	3.0	3.3	5.3	-0.2
1939			2.9	4.5	
-----					
1946	15.9	3.1	3.7	4.9	+4.3
1947					+6.9
1948	21.1				
1949	19.4				+1.4
1950		4.4			
1951	25.6	3.6			+7.6
1952	19.2	3.5	6.4	8.1	+1.2

TABLE

Gross Private Domestic Investment and Its Components, the  
United States, Selected Years, 1929-1952, as Percentages of  
Gross National Expenditure. Original Data in Current Dollars. 2/.

Year	Gr. priv. domest. investm.	Resident construct. activity	Nonres. constr. activity	Producers' durable equipment	Change in business inventories
1929	14.2	3.3	4.6	6.2	+1.5
1932	1.5			3.1	-4.4
1933	2.3	0.9	1.3	3.2	-2.9
1937	12.7	2.2	2.1	6.0	+2.6
1938	7.4	2.4	1.8	4.7	-1.1
-----					
1946	13.6	2.1	2.5	5.8	+2.9
1947					-0.3
1948	16.5	3.5	2.9	7.7	+1.9
1949	12.9	3.4	2.9	7.4	-1.2
1950		4.7	2.7		
1951	17.7	N.a.	N.a.		+3.3
1952	15.1	N.a.	N.a.	7.3	+1.1

1/ Cf. post tables 1 & 8.

2/ Cf. post tables 1, 9 & 10.



Changes in gross national expenditure, domestic investment and its components in 1937, 1938, and 1939 were of special interest. It was stated at the beginning of Chapter I that a business cycle is a fluctuation in aggregate economic activity. The most all-inclusive manifestation of it is a change in real national income or output. The real gross national expenditure, did not decline at all during the year 1938 although gross national expenditure, as measured in current dollars, did decline. As for the 1938 recession in the United States, the American gross national expenditure measured in current dollars showed a decline as did the real national income as computed by Kuznets 1/ or by Gilbert Milton and Louis Paradiso 2/.

From the definition of a business cycle given previously, apparently there was a recession in the United States in 1938 but none in Canada despite a decline in the Canadian gross national expenditure as measured in current dollars. This, however, seems to be too narrow a definition of a business cycle.

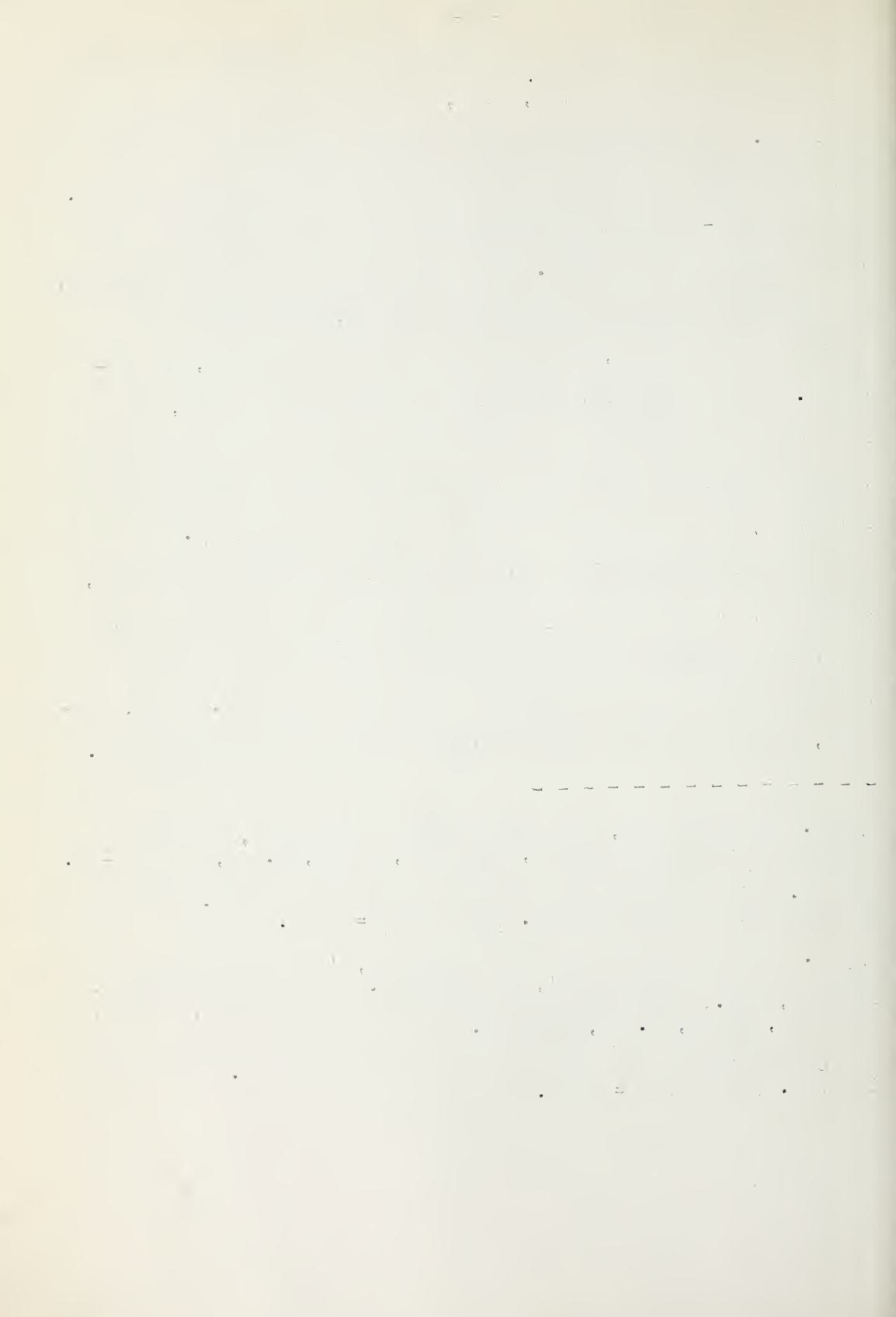
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1/ Cf. Simon Kuznets, National Product Since 1869, (National Bureau of Economic Research, New York, 1946), p. 56, table 1-19.

According to Kuznets the American real national income was 84.0 billions of constant dollars in 1937 and 80.7 billions of constant dollars in 1938. (base 1929 = 100).

2/ Cf. Gilbert Milton and Louis Paradiso, 'National Income and Other Business Indicators', in Philip M. Hauser and William R. Leonard, eds., Government Statistics for Business Use, (Wiley, New York, 1946), p. 23, table 1.

According to this source the American real national income was 68 billions of constant dollars in 1937 and 63.2 billions in 1938. (base 1939 = 100).



If investment activity is considered to be the most significant type of economic activity, a decline in investment activity alone should also be taken into consideration. Our data showed that gross domestic investment activity in Canada, whether in current or in constant dollars, declined in 1938. Some of the components of Canadian investment as measured in current and constant dollars continued to decline even in 1939. This decline occurred in investment in nonresidential construction and in machinery and equipment, and was apparently due to adverse business expectations.

Besides investment in real terms, a few other components of Canadian gross national expenditure in constant dollars declined in 1938 1/. Personal consumption, exports and imports in constant dollars declined in 1938 and the balance of trade declined from 1936 to 1938.

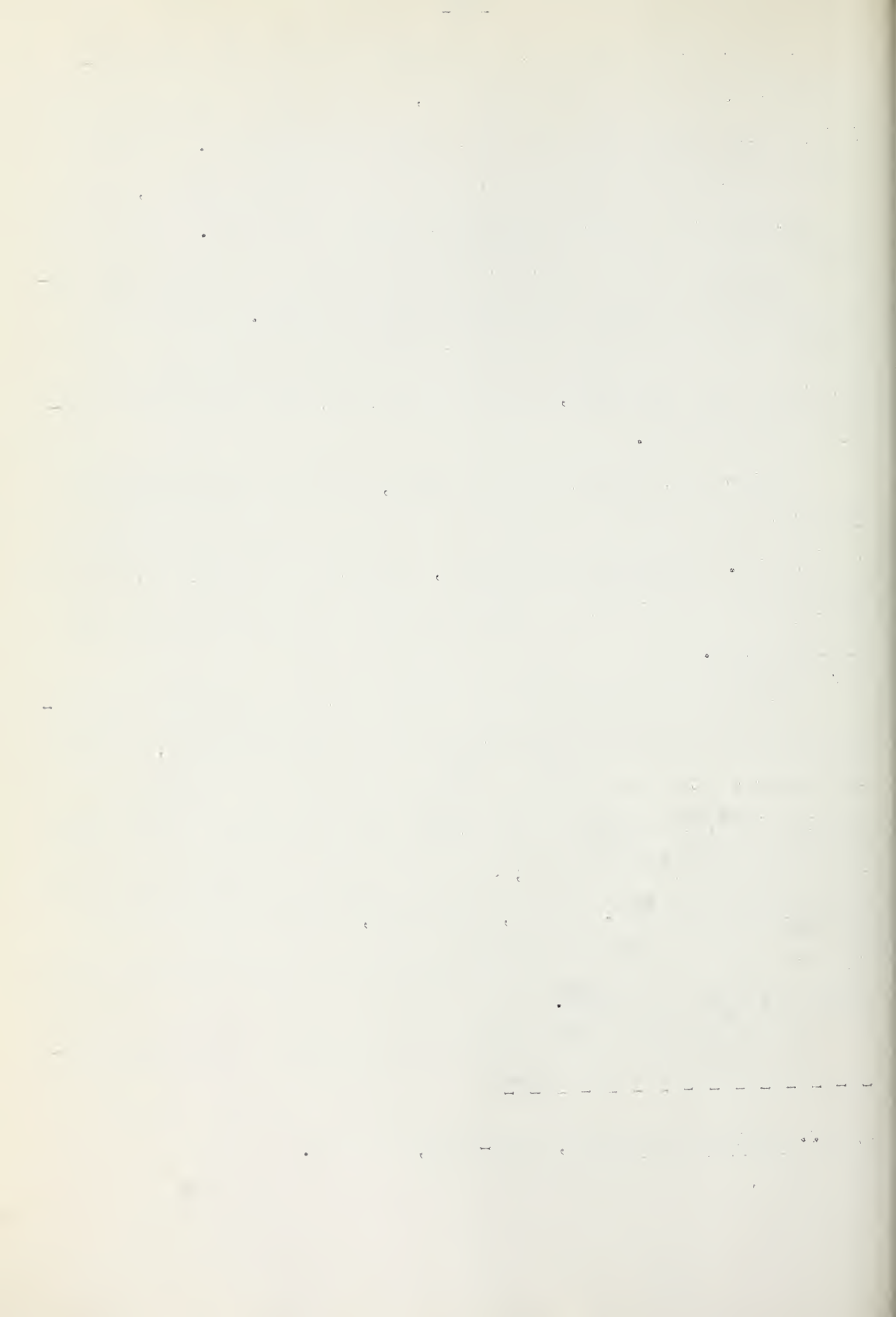
Although the decline in the American gross national expenditure in current dollars was greater than that of Canada, the fact that some of the components of Canadian investment continued to decline in 1939 indicates that there was a tendency for the whole Canadian economy to decline; at least business expectations were adverse to expansion. It is, therefore, difficult to maintain that there was a recession in the United States in 1938 but that there was none in Canada.

How should such a recession be classified? Economists some-

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1/ Cf. National Accounts, 1926-1950, table 3.





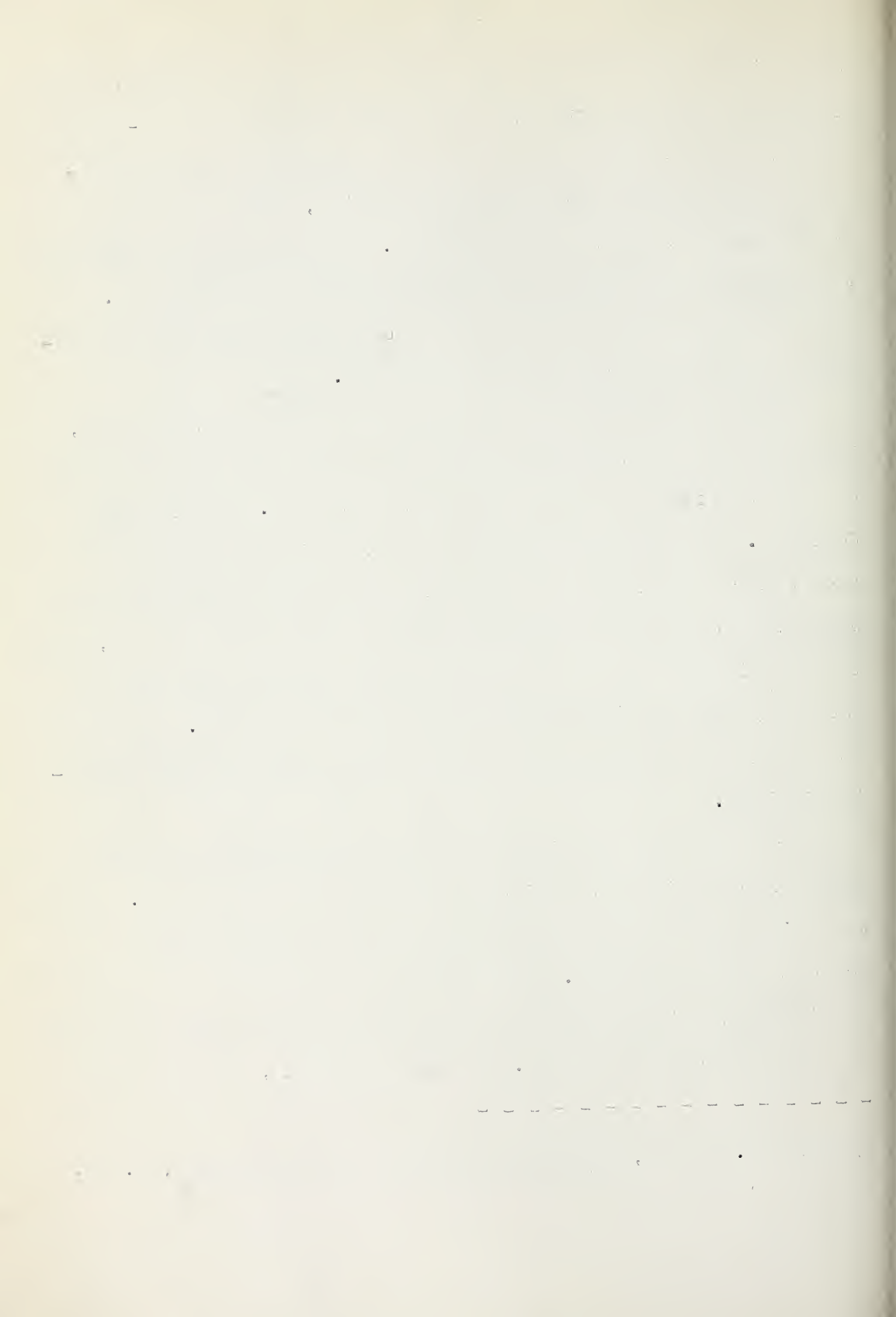
times distinguish between major and minor business cycles. Major cycles are characterized by longer lasting swings from 3-5 years usually and the amplitude of such fluctuations is substantial. Minor waves usually occur during expansion, last for shorter periods and have a smaller amplitude. They are characterized as being more in the nature of a disturbance to the expansion. If the gross national expenditure is plotted on a graph the difference in amplitude and timing is striking.

Although the American contraction in 1938 was very short, its amplitude was substantial and some economists consider it to be true contraction of major business cycle 1/. But this is doubtful. The Canadian recession of 1938 did not demonstrate such a large amplitude although business expectations must have been even more adverse than were those of the United States, since the Canadian investment in nonresidential construction and in machinery and equipment continued to decline in 1939. Apparently it should be classified the same way as was the American recession in 1938.

From the small amplitude one could deduce that the 1938 Canadian recession was a minor business cycle contraction. The data with regard to the 1949 recession in the United States support such an opinion. This recession was usually classified as minor wave disturbance and it resembled the Canadian recession in 1938 to a certain degree. It was short, the decline in

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1/ Alvin H. Hansen, Business Cycles and National Income, p. 35.



gross national expenditure in current dollars was not great, and the gross private domestic investment declined, also. Some components of domestic investment, viz. change in inventories, new nonresidential construction activity and producers' durable equipment, all in current dollars, declined in 1949, but new residential construction activity did not. Also consumption of durables declined that year.

Similarly to the Canadian experience in 1938 the American gross national expenditure in constant dollars did not decline. Despite this increase in real national income the year 1949 in the United States was often considered as a minor cycle contraction.

We may conclude that the 1949 recession in the United States resembled that of Canada in 1938. Both apparently were minor cycle contractions. The American recession in 1938, although there are opinions to the contrary, could be classified similarly.





## Chapter V. BALANCE OF TRADE

The Canadian and American balances of trade differed greatly in their changes during the period under study. The Canadian balance declined from 1926 to a low level in 1930, then increased to a high level in 1936 and declined to 1938. The American balance of trade reached a high level in 1928 1/. From 1928 the American balance of trade declined to 1933, increased in 1934, declined to 1936 and increased to 1938. The balance of trade for the two countries is plotted in Diagram No. 10.

The remarkable thing about this graph is that the Canadian and American trade balances differed so little in their size although the American economy was so large in comparison with the Canadian. This illustrates well the differing degrees to which the two economies are dependent on external trade.

The balance of trade is composed of exports less imports. These exports and imports were charted in Diagram No. 11 and, of course, the balance of trade is contained in the relationships as well.

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1/ Hal. B. Lary and Associates, The United States in the World Economy, Reprint. by H.M. Printing Office, (London, 1944) table 1.

This series does not fit exactly into the data available to us from 1929 but the difference does not seem to be too large. As a possible check on their data one could use Kuznets' estimates for claims against foreign countries. These estimates were the highest in 1928; see Simon Smith Kuznets', National Income and Its Composition, 1919-1938, (New York, 1941), Vol. 1, p. 272.

From 1929 data were drawn from National Income, 1951 edition A supplement to the Survey of Current Business, U.S. Department of Commerce, (Washington, 1951), and from Federal Reserve Bulletin, (Board of Governors, Washington, Aug. 1953).



Year

1952

1950

1940

1930

1926

Diagram No.10.

The Balance of Trade, Canada and the United States, 1926-1952. In Millions of Current Dollars.

Source: tables 12 & 14.

— Canadian balance of trade,  
— U.S. balance of trade.

10000 8000 6000 4000 2000 0 -2000 -4000  
millions of dollars.







Millions of Dollars.



Diagram No.11.

Exports and Imports, Canada and the United States, 1926-1952. In Millions of Dollars.  
Source: tables 13 & 14.

Canadian exports,  
Canadian imports,  
U.S. exports,  
U.S. imports.

1926 7 8 1930 1 2 3 4 5 6 7 8 1940 1 2 3 4 5 6 7 8 1950 1 2 Year





In timing, changes in Canadian and American imports in the late twenties and in the thirties corresponded with changes in their respective gross national expenditures and with each other as movements of the Canadian and American gross national expenditure corresponded in this period. Such close correlation of imports and income leads us to consider the first a function of the second and call it the propensity to import.

If we express imports as a percentage of gross national expenditure we can call this the average propensity to import. Colin Clark 1/ computed also the marginal propensity to import for this period and he gives the following estimates of the marginal propensities to import: for Canada, 0.26, for the United Kingdom, 0.175, and for the United States, 0.048.

The American and Canadian export series were not correlated with their respective gross national expenditure series, nor with each other. American exports increased from 1926 to 1928, declined to 1933, increased to 1937 and declined in 1938. Canadian exports declined from 1926 to 1927, increased in 1928, declined to 1932, increased to 1937 and declined in 1938.

From 1926 to 1927 exports and the Canadian balance of trade declined and imports increased. In 1928 the balance of trade continued to decline but exports and imports increased, the latter at a higher rate. In 1929, the balance of trade and exports declined as imports increased. In 1930 all three magnitudes

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1/ Colin Clark, Conditions of Economic Progress, (Macmillan and Co., second edition, London, 1951), p. 394.



declined. From 1931 to 1932 exports and imports declined, the latter at a higher rate such that the balance of trade increased. In 1933 the balance of trade and exports increased as imports declined. From 1934 to 1936 all three magnitudes increased, exports increasing more rapidly than imports. In 1937 the balance of trade declined as exports and imports increased, the latter at a lower rate. In 1938 all three magnitudes declined.

The relative change of exports and imports is shown in the following table. As before, the 1929 figures were considered as a base of 100 and postwar values were not included. The letter 'C' stands for Canada and the letter 'A' for the United States.

TABLE

The Relative Change in Exports and Imports, Canada and the United States, Selected Years, 1926-1938. As relatives: 1929=100. 1/

Year	Exports		Imports	
	C	A	C	A
1926	101.1	N.c.	78.3	N.c.
1928	108.7	N.c.	92.9	N.c.
1929	100.0	100.0	100.0	100.0
1932	49.3	34.6	46.3	36.3
1933	50.6	33.9	42.6	35.8
1937	97.5	63.1	72.4	70.1
1938	83.1	61.4	64.6	50.9

Exports and imports as percentages of gross national expenditure are given in the following table, the balance of trade and post-war figures are included here.

1/ Cf. post tables 13 & 14.

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TABLE

Balance of Trade, Exports and Imports, Canada and the United States, Selected Years, 1926-1952, In Percentages of Respective Gross National Expenditure. 1/

Year	Bal. of Trade		Exports		Imports	
	C	A	C	A	C	A
1926	+2.4	N.C.	31.2	N.c.	28.7	N.c.
1928		peak	29.0	peak		
1929	-5.1	+0.7	26.5	6.5	31.5	5.8
1930	-6.1					
1932			21.3			
1933	-0.1	+0.3	23.3	4.1	23.3	3.9
1934		+0.7				
1936	+5.2	-0.1				
1937	+3.4	+0.1	29.7	4.7	26.3	4.7
1938	+1.9	+1.3	25.9	4.9	24.0	3.6
1946	+2.7	+2.2	26.7	5.9	23.9	3.7
1947	+0.1	+3.8		7.6		
1948	+2.7		26.0			
1949			24.4			
1950		-0.8		4.5		5.3
1951	-2.4	+0.1		N.a.	26.1	N.a.
1952	+0.7	-0.1	24.2	N.a.	23.5	N.a.

One of the fundamental differences between the American and Canadian economies exhibited by this chapter was the relative importance of external trade to the latter economy and the relative insignificance to the former. Because of these differences, Canada's trade position will be examined in much greater detail in Part II of this study.

1/ Cr. post tables 1, 12, 13 & 14.



## Chapter VI. C O N C L U S I O N

The significance of the differences between the Canadian and American economies may now be evaluated. Due to the shortness of the postwar period and some abnormalities resulting from the aftereffects of the Second World War, only the late twenties and the thirties will serve as a basis for this evaluation. Differences in the range of relative change, in the importance of some components for the whole economy as measured by the percentage of gross national expenditure, and in timing and direction of changes, will be here considered.

It was found that the Canadian and American gross national expenditure in current dollars were synchronized in their change, although changes in the Canadian national income apparently led those of the American by a few months. The range of relative change in the Canadian national income was slightly smaller than that of the United States but this higher volatility of the American gross national expenditure was too small to be considered highly significant.

Personal consumption expenditures in current dollars in both countries were similar to each other and to their respective gross national expenditures. Turning points were synchronized and the range of their relative change did not differ significantly. If this component was expressed as a percentage of respective gross national expenditure and called the average



propensity to consume, a difference was found that is considered significant. The Canadian average propensity to consume was consistently lower than that of the United States but the difference represented a small percentage of gross national expenditure only.

Much the same can be said about consumption of durables and of nondurables although the differences in range of relative change and in percentages of respective gross national expenditure were slightly higher than that of the total consumption expenditures. Consumption of services differed in turning points but both the Canadian and American series were very stable and the differences in range were very small and could be considered to be insignificant.

Government spending in both countries differed significantly. At the end of the late twenties Canadian governments were spending a comparatively larger percentage of Gross National Expenditures than were those of the United States. During the thirties the American and the Canadian government spending rose, the former eventually forming a larger part of Gross National Expenditure than the latter. Much of this spending was not offset by increased government revenue and had to be financed by borrowing. In other words government deficit spending occurred in both countries for most of the thirties. The pattern of spending in Canada differed from that in the United States. Canadian government deficit spending rose steeply in the early thirties and then steadily declined to insig-





nificance. The American government spending rose to a high level in the early thirties and was kept at this level until 1937. In that year government policy changed and a surplus in government spending was sought. The recession of 1938 followed this new policy and the American governments returned to high budgetary deficits.

It was found that high and consistent government deficit spending in the United States was not without success especially in the expansion period from 1934 to 1936. In Canada the results were not visible. Perhaps the Canadian economy, being more open, was subject to great leakages through the large volume of external trade but, in any case, the policy of government deficit spending was not pursued so consistently as it was in the United States.

In Chapter IV gross domestic investment in both countries was examined. Differences in residential construction and in changes in inventories were apparently significant.

The Canadian new investment in residential construction usually corresponded in timing and direction of change with gross national expenditure. The American counterpart had its highest level in 1926, its lowest in 1933 and its expansion continued through the recession of 1938. Private residential new construction activity in the United States throughout this period moved independently of other economic fluctuations.

The range of relative change in American private residential construction activity was larger than that of the Canadian.



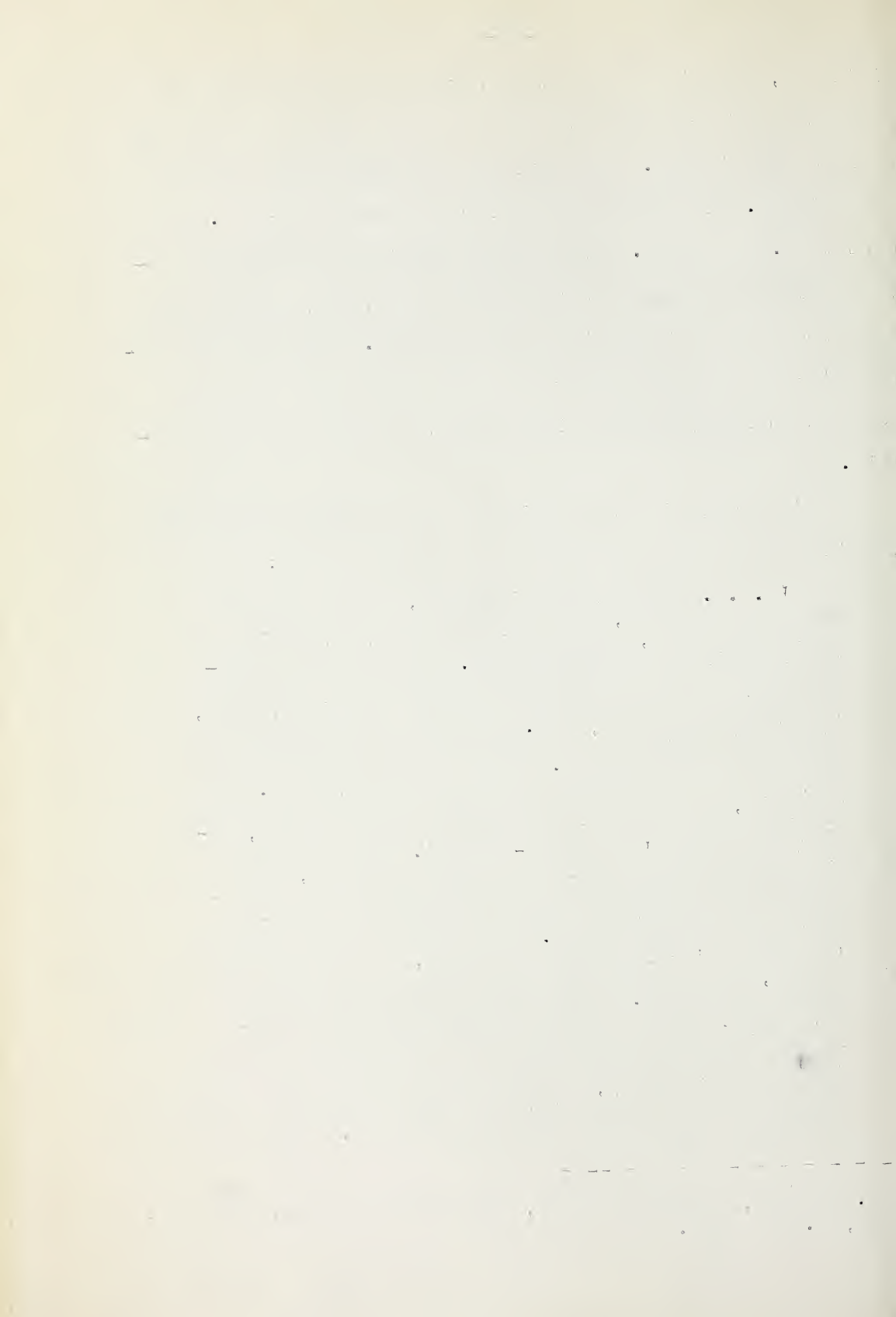
Similarly, Canadian residential construction expressed as a percentage of gross national expenditure was more stable and changed from 4 to 2.1 per cent of respective gross national expenditure. The American counterpart changed from 3.3 per cent to 0.9 per cent. The greater stability of Canadian investment in residential construction apparently arises from a lack of credit facilities in this field. The credit available for this purpose apparently depended on the level of economic activity so that independent movement was not possible.

A different situation existed in the United States and the following passages explain that difference 1/:

1 . . . . The building industry, especially in the United States, has tended to become a very speculative one, characterized by very lax methods of financing new construction. Contractors generally have little difficulty in gaining extensions of credit from traditional lending agencies (banks, insurance companies, etc.) as well as from the firms which supply the construction industries with materials and supplies. These latter sell on very easy terms in an effort to stimulate business. As a result, large numbers of building contractors are enabled to operate with minimum equity capital, almost literally 'on a shoe-string'. Thus whenever the prospects for profits appear favorable, the construction industries are subjected to an abnormally large influx of new and relatively inexperienced entrepreneurs. It is this large group of 'in and out' contractors which is, to an important degree, responsible for the tremendous oversupply of new buildings. Since these periods of excessive investment by the building trades and their consequential severe depressions of building activity tend to repeat themselves within the memory of many men in the industry, it becomes necessary for housing demand to remain high for some time before they trust the market and expand building activity. This initial

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1/ D. Hamberg, Business Cycles, (The Macmillan Co., New York, 1951), p. 13 & 416.





timidity of the trade tends to accentuate the lag of supply, but more important it tends to increase the danger of eventual oversupply, once these fears of depression are overcome.

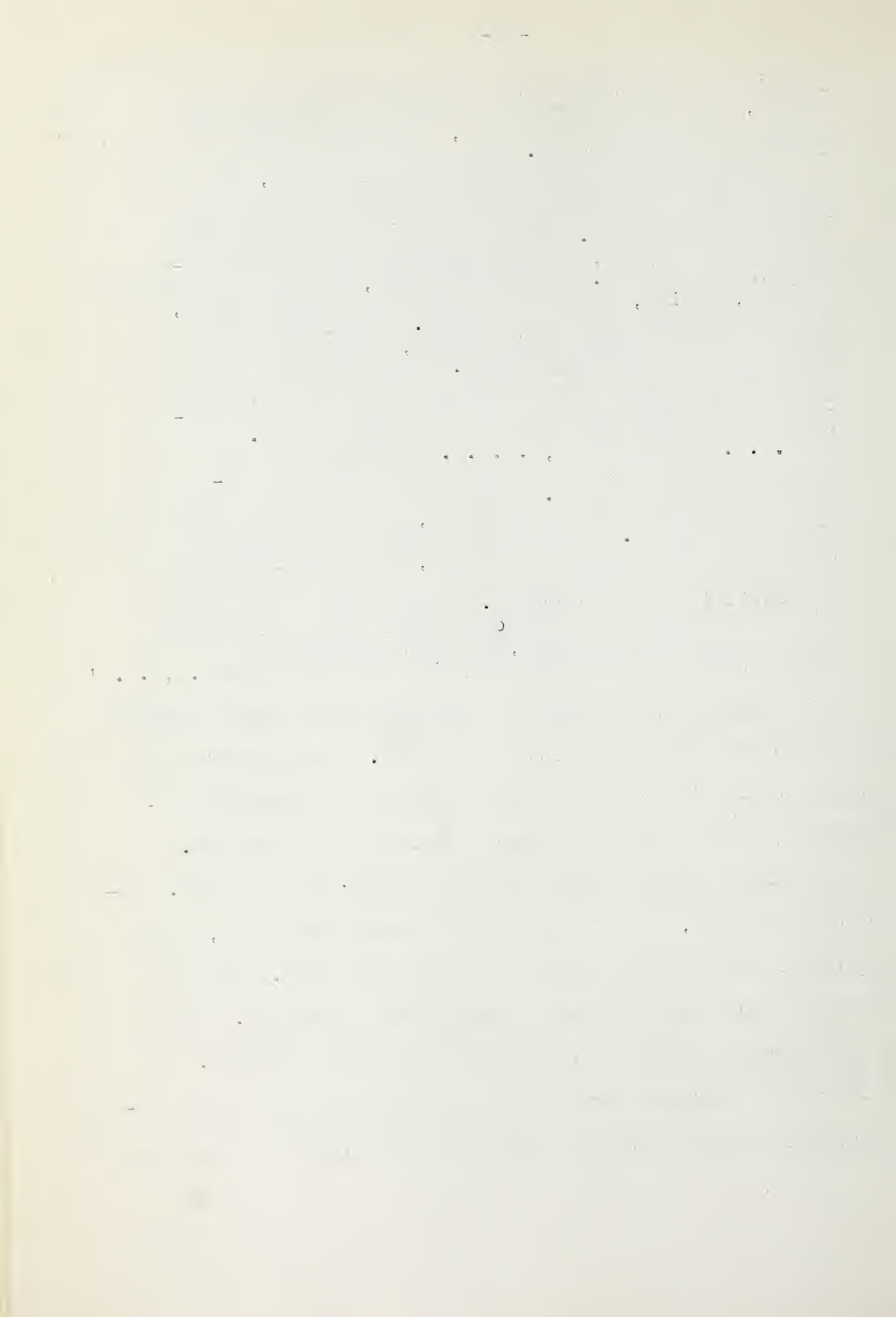
In addition to entrepreneurial timidity, the long depressions on the construction industry tend to create relative shortages of both skilled labor and capable contractors. During the depressed phases of the building cycle, younger workers tend to seek employment elsewhere. This means that, as the older workers die off, retire, or move out of the building trades, replacements are not forthcoming. Thus, when the demand for new construction rises, it must be met by a greatly reduced labor force. Considerable time must elapse before new workers can be trained; and this in addition to the period of high demand necessary to overcome the fears of the contractors.

. . . in Chapter I, . . . we emphasized the extreme speculative character of the building industry in this country. Producing units are in the habit of working on a shoestring, of operating with almost no equity. Given the slowness with which a construction boom gets under way, the opportunities for speculative building become rampant when most of the capital can be borrowed. And in the latter part of the twenties the commercial banks went in for real estate loans in a big way, so that prospective builders had little difficulty in obtaining funds . . . . '

This apparently explains why housing in the United States did not decline during the 1938 recession. The expansion in housing started in 1933 and once it started it continued independently of the changes in gross national expenditure.

Important changes took place in Canada after the war. Insurance companies, especially life insurance companies, became very strong businesses with ample supply of funds. Risks of housing finance were lowered by government guarantee. This provided greater credit facilities for housing purposes.

Whether such increased credit for this purpose will permit investment in residential construction in Canada to be carried



on more independently from changes in gross national expenditure than formerly remains a question of the future.

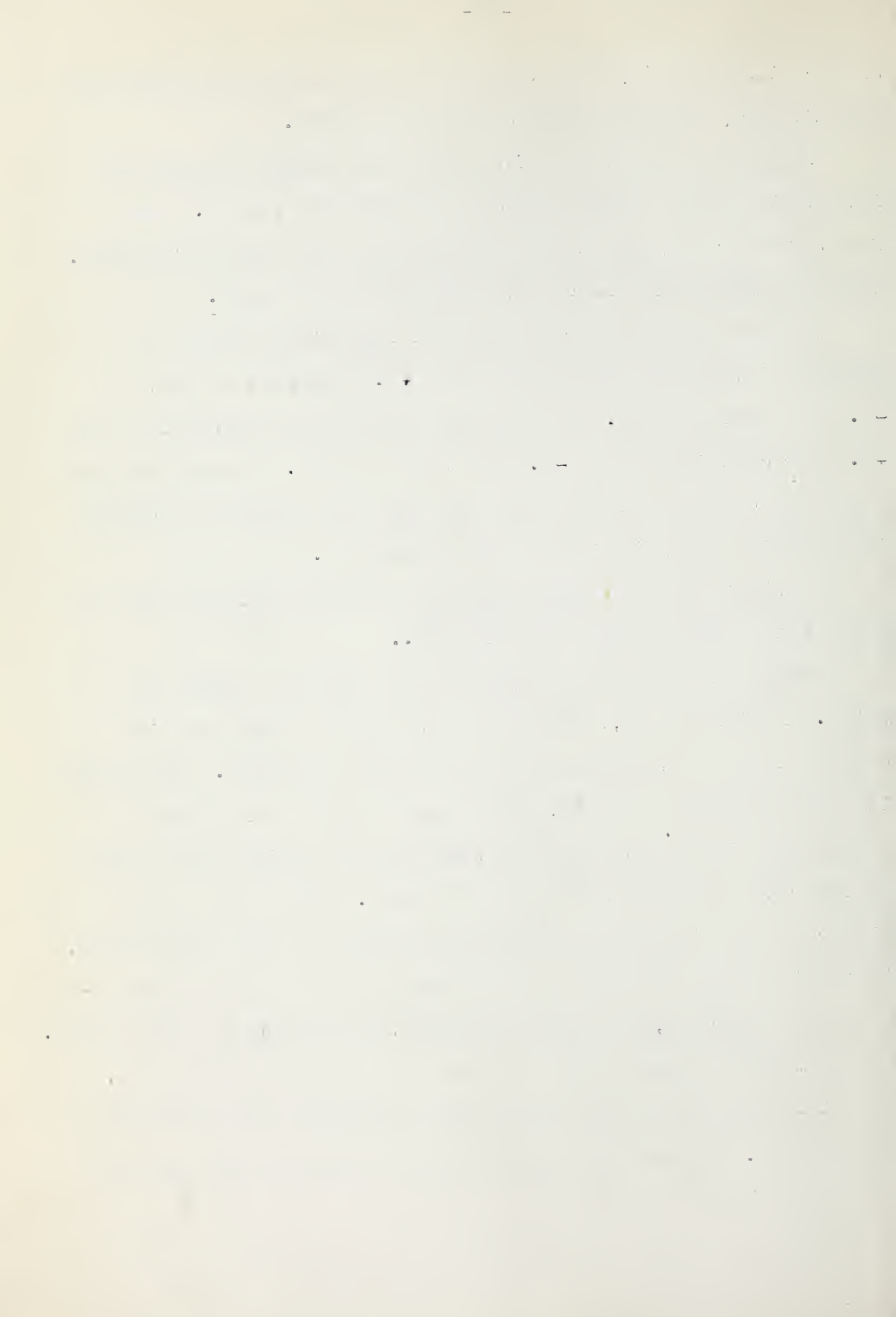
Changes in inventories in Canada and changes in business inventories in the United States had little in common. They fluctuated greatly and their fluctuations were not synchronized. There was apparently no consistent pattern of change.

In percentages of gross national expenditure change in Canadian inventories fluctuated from +3.7 per cent in 1927 to -6.3 per cent in 1931. The American counterpart fluctuated from +2.6 per cent in 1937 to -4.4 per cent in 1932. Changes in this magnitude cannot be ignored but the lack of a pattern of change imposes difficulty in finding an explanation.

No single theory explains all the observed data but one may attempt to explain as many as possible.

Change in inventories may be linked with the growth of sales. If this be so, changes in inventories should reflect changes in the rate of growth or of decline in sales. In practice it may be expected that inventories will lag in adjustment so that change in inventories will lag slightly behind the changes in the rate of growth or decline of sales. This lag will be different for different commodities but even if that is admitted, it should be expected that turning points of change in inventories should precede the actual increase or decrease in total sales.

A separate sales series was not introduced in this study, but it is known that such series would resemble gross national expenditure. Accordingly one can expect that the high and low





levels of changes in inventories should coincide or follow the high and low levels of a series made of a rate of change in gross national expenditure. Let us consider the following table.

TABLE

Changes in Gross National Expenditure, Peaks and Troughs in Changes in Inventories, Canada and the United States, Selected Years, 1926-1939. Figures in Millions of Current Dollars. 1/

Year	Gross national expenditure Change in from preced.year		Change in inventories	
	Canada	The United States	Canada	The United States (business inventories only)
1926	N.a.	N.a.		
1927	+353	N.a.	peak	
1928	+458	N.a.		trough
1929	+ 61	N.a.		peak
1930	-620	-12971		
1931	-986	-14927	trough	
1932	-793	-17590		trough
1933	-215	- 2580		
1934	+482	+ 9108	peak	
1935	+311	+ 7326	trough	
1936	+356	+10290		
1937	+654	+ 7730	peak	peak
1938	-122	- 5530	trough	trough
1939	+474	+ 6656		

A study of the preceding table supports the theory that change in inventories coincides or lags slightly behind the change in the rate of growth or decline of sales, or here, behind the maximum and minimum values of the rate of change in gross national expenditure.

The lowest level of change in Canadian inventories in 1931 and 1938 coincided with the lowest level of rate of change in gross nation-

1/ Cf. post tables 1, 8 & 9.



[illegible]

al expenditure, and the highest level of change in Canadian inventories in 1934 with the highest level in the rate of change in gross national expenditure. The peak in change in inventories in 1937 and the trough in 1938 coincided with a similar peak and trough in the rates of change in gross national expenditure of the same years.

The American data support this theory but with some exceptions. The lowest level in change in business inventories occurred in 1932 and coincided with the lowest level in the rate of change in gross national expenditure of the same year. The peak in change in business inventories in 1937 lagged one year behind the rate of change in gross national expenditure. In 1938 both change in business inventories and the rate of change in gross national expenditure were at their lowest level. Some turning points in the rate of change in the American gross national expenditure apparently did not influence movements of inventories. The rate of change in gross national expenditure was at the highest level in 1934 and at the lowest in 1935 and these changes in national income apparently did not influence business inventories.

According to the reasoning given above it was assumed that entrepreneurs were able to adjust their inventories to the actual level of their sales as measured by the level of national



income. This ability to adjust inventories would be more likely to be possible if changes in sales were small and continuous. If sales fall considerably and suddenly, as may occur when expansion in national income comes to an end, entrepreneurs may be unable to adjust their inventories and divergent movements of rising inventories and declining sales may occur. At lower turning points of gross national expenditure the opposite may occur. Expansion in sales can deplete stocks and lower them. Such changes in inventories could be called involuntary and may arise from the inability of entrepreneurs to adjust their stocks to the actual level of sales.

Changes in inventories expressed in current dollars did not reveal any involuntary changes, but that may be deceptive. First, our data were yearly aggregates only and could conceal movements in inventories of periods shorter than one year. Second, price changes could conceal movements in the volume of inventories. Large price declines or increases could more than offset increases or declines in volume of limited size.

One may expect that the level of stocks would become too high the moment the peak in sales was passed. At the new level of sales less of them would be sold and meanwhile the old orders are filled leading to an increase in the volume stocked. Price changes aggravate this situation. The old stocks were bought at higher prices and the entrepreneurs usually do not cut their prices to the level of price justified by the new replacement cost. This





must cause some sales resistance, especially when with many prices declining the buyers expect **such** declines to spread over the whole economy. Bookkeeping practices could be responsible, also. In contraction prices tend to be the lowest at the end of the calendar year when most of the businesses close their books and value their stocks often at the cost of replacement, i.e., at the lowest price of stocks and not at their average cost during the year. Price declines in contraction can easily conceal any involuntary increases in stocks. Similarly when the lower turning point in gross national expenditure was passed increasing sales can easily deplete stocks but rising cost of their replacement may conceal this decline in balance sheets computed at the end of such a year.

This calls for a study of change in the volume of inventories. Change in inventories in constant dollars would measure volumes and data for Canada were available 1/. Usually turning points of Canadian inventories in current dollars were observable also in constant dollar series but the latter fluctuated more often and some of these additional fluctuations can be linked with involuntary changes in inventories.

Changes in the volume of Canadian inventories were at their highest level in 1930 lagging one year behind the upper turning point in gross national expenditure. In 1933 they were at a

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1/ Cf. National Accounts, 1926-1950, table 3.



minimum although in current dollars this series increased from 1931. The lower turning point in gross national expenditure occurred the same year and this must have led to depletion of stocks.

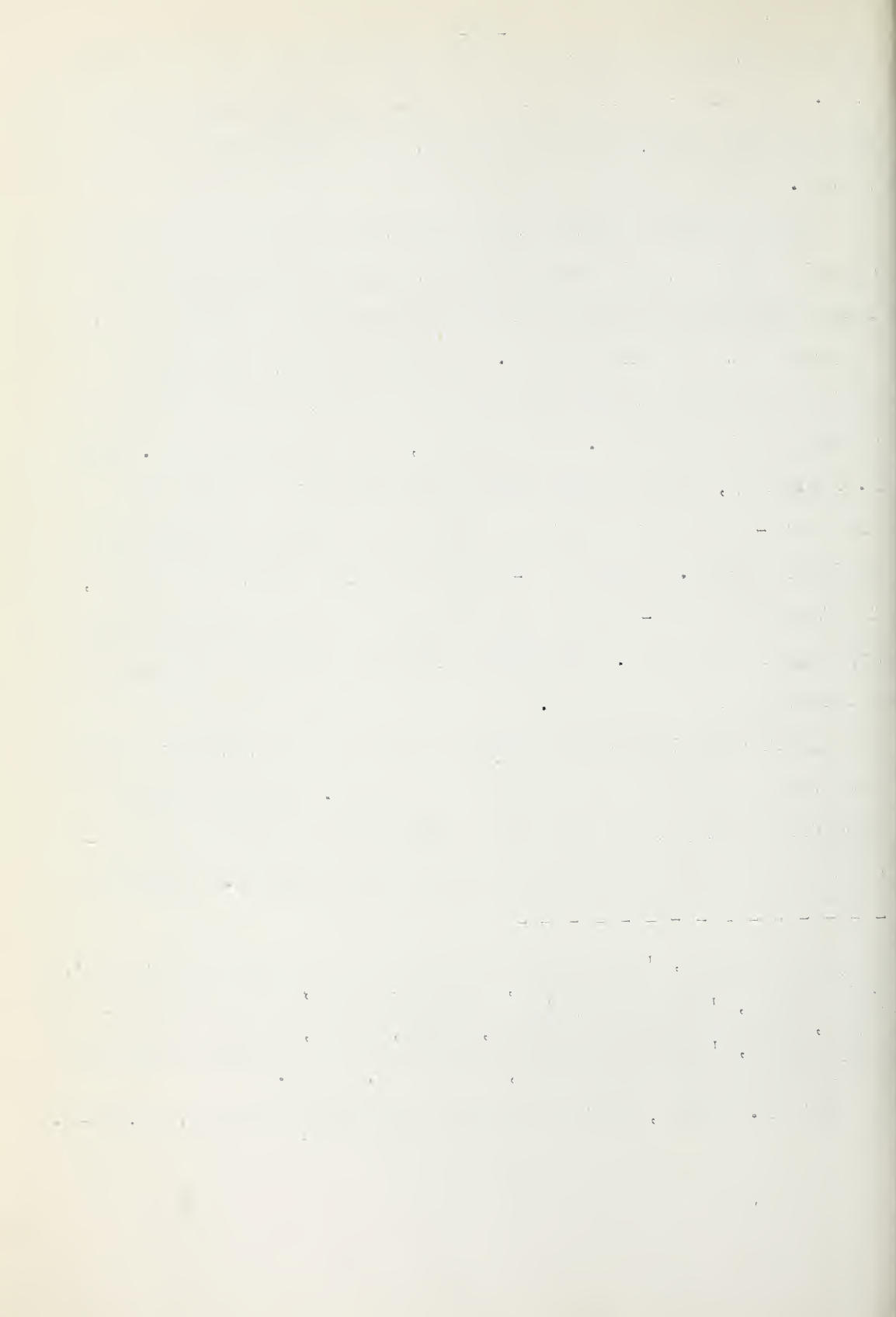
Some economists based their explanation of business cycles on this inability of entrepreneurs to adjust their stocks to sudden and large changes in sales at the time of turning points in gross national expenditure. Lloyd Metzler 1/ presents a whole oscillation theory of business cycles based on involuntary changes in inventories. This theory, as restated by Prof. Alvin H. Hansen 2/, implies that change in inventories should lag about one-fourth of a cycle behind turning points in sales or national income. Assuming 8-12 years as the length of a cycle, the lag would be 2-3 years but the Canadian data did not reveal any lag of this size. Apparently Canadian inventory changes do not conform to this theory.

As for the balance of trade it was found that Canadian and American series did not resemble each other. Turning points were differently timed and their importance as measured as percentage of gross national expenditure was different. Canadian

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1/ Lloyd Metzler, 'The Nature and Stability of Inventory Cycles', Review of Economic Statistics, (August, 1941),  
same author, 'Business Cycles and the Modern Theory of employment', American Economic Review, (June, 1946),  
same author, 'Factors Governing the Length of Inventory Cycles', Review of Economic Statistics, (February, 1947).

2/ Alvin H. Hansen, Business Cycles and National Income, pp.471-6.



balance of trade fluctuated from plus 5.2 per cent of gross national expenditure in 1936 to minus 6.1 per cent in 1930. The American balance of trade fluctuated from plus 1.3 per cent of gross national expenditure in 1938 to minus 0.1 per cent in 1936. The Canadian balance of trade was a more important component of gross national expenditure and was more unstable than was its American counterpart.

Not only did the Canadian balance of trade represent an important part of gross national expenditure but also its movements led, by a year or more, those of gross national expenditure. The American balance of trade showed no such pattern but corresponded in timing with gross national expenditure.

Balance of trade is made of exports less imports. It was found that imports resembled respective gross national expenditures and through this each other. If their pattern of change was predictable then the key to differences in balance of trade lay with exports. The relation, however, was not a simple one. Balance of trade and exports did not move parallel to each other. It was found that often it was the comparative rate at which exports and imports changed that was responsible for changes in the balance of trade.

The relative range of the American exports fluctuated more than did the Canadian, but the difference in percentages of gross national expenditure showed that the Canadian exports were more important components of respective gross national expenditure.





Canadian exports fluctuated from 31.2 per cent of gross national expenditure in 1926 to 21.3 per cent in 1932. American exports fluctuated from 6.5 per cent of gross national expenditure in 1929 to 4.1 per cent in 1933. Here the large difference between the open economy of Canada and the closed economy of the United States could be distinguished. Thus the relatively larger change in the American exports were not very significant as they formed such a small percentage of gross national expenditure.

Our study of relations between the Canadian and American economies has disclosed that, though the economies were quite closely related, there were some important differences as revealed by large differences in changes of some components of gross national expenditure.

The most significant of our findings were the differences in government spending and government deficit spending, in housing construction, and in change in inventories. Differences in balance of trade and in exports were also considered of great importance. In respect of foreign trade the two countries represented two opposite poles. Foreign trade as a component of gross national expenditure is of great importance for Canada and of little significance for the United States. This difference in importance of foreign trade for Canada led to a separate treatment of Canadian foreign trade in Part II.



PART TWO  
CANADIAN EXPORTS  
EXAMINED





Chapter VII. COMPOSITION AND DIRECTION OF CANADIAN EXPORTS.

The value of exports as presented in our National Accounts statistics is an aggregate consisting of exports of merchandise, of services rendered to nonresidents, including interest and dividends received from abroad for use of Canadian capital, of gold available for exports and of a small component called "adjustments".

Adjustments usually represented a small percentage of total exports and were ordinarily due to statistical discrepancy except for the war and immediately postwar period, when they have included such items as Mutual Aid, etc. 1/ As our interest is limited especially to the period from 1926 to 1938 we may ignore this statistic.

Gold exports played an important role in Canadian exports but there were reasons to distinguish them from all other exports of merchandise. The price of gold in most countries was legally fixed and so gold was to a large extent exempted from price fluctuations. During the thirties when other goods suffered severe price declines gold maintained its value and when a wave of currency depreciations occurred the value of gold in terms of money was increased.

Canada was usually short of American dollars and the United States was ready to supply any amount of its currency in exchange for gold bought at fixed prices. Gold became the surest source of American exchange and the amount to be received was

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1/Cf National Accounts, 1926-1950, p. 80.



highly predictable. Therefore, a custom arose of including gold extracted in Canada in her exchange reserves as an equivalent to American dollars the moment it was available for export. For the same reason this gold was considered as exported to the United States even if in fact it had a different destination. 1/

Diagram No. 12 gives the subdivisions of total exports on a semilogarithmic graph. Adjustments are omitted. One can see that the total exports resembled exports of merchandise closely except for the war period. These distortions were mostly due to the rising importance of adjustments.

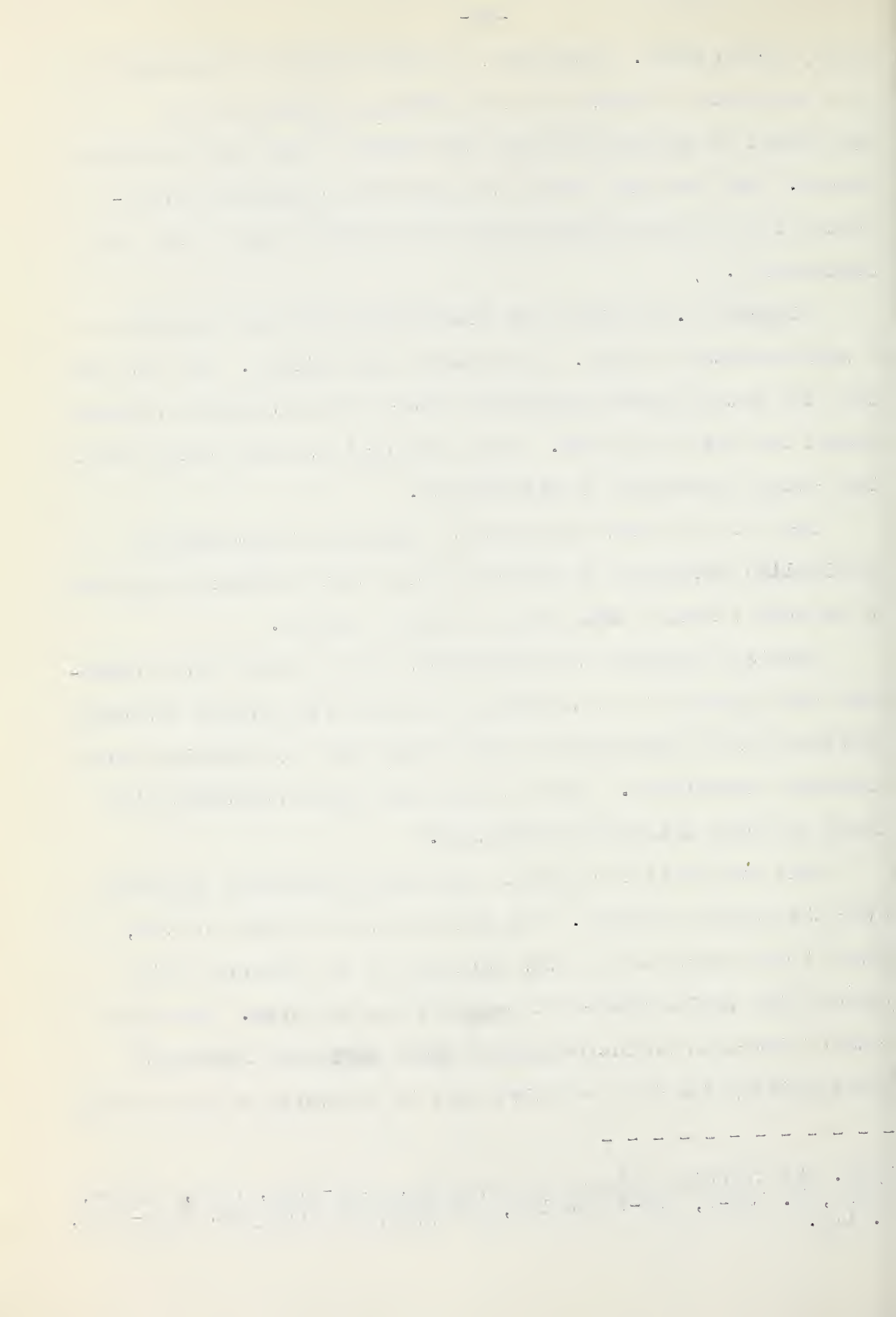
From 1926 to 1939 movements of exports of merchandise paralleled movements of exports though their movements appeared to be more volatile than those of total exports.

Services rendered to nonresidents were a more stable component and appeared to be correlated better with general business fluctuations in the world as represented well by Canadian gross national expenditure. Their troughs and peaks coincided with those of gross national expenditure.

Gold available for exports exhibited remarkable expansion over the period of study. The series was at a peak in 1928, a small trough appeared in 1929 followed by an expansion which carried the series upwards throughout the thirties. The high rate of increase in the expansion phase reflected increased profitability due to a relative rise in the value of gold during

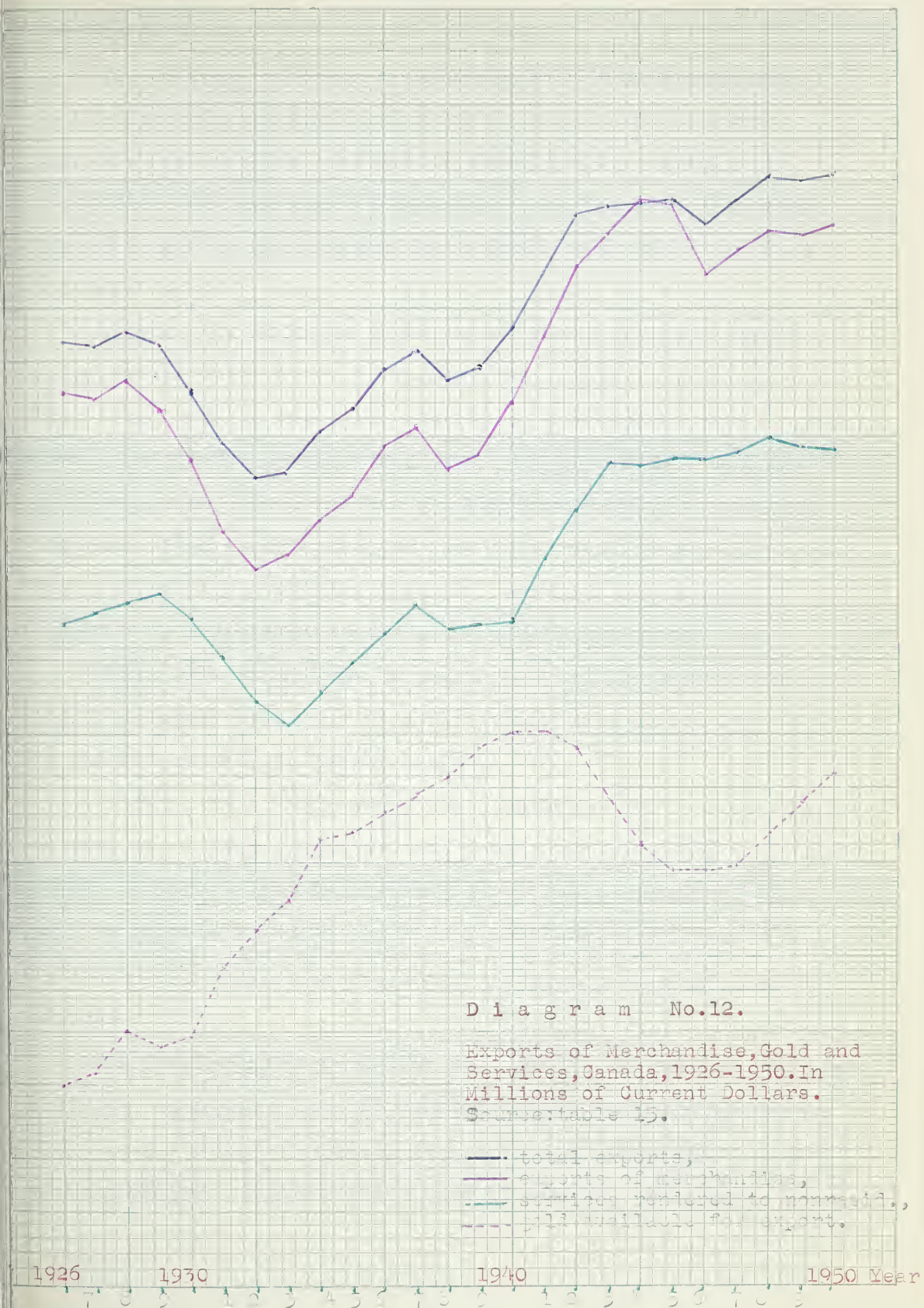
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1/Cf. The Canadian Balance of Payments, 1926-1948, (DBS, Ottawa, 1949), pp. 154-6, 158-9 and 161, and National Accounts, 1926-1950, p. 114.





lions of Dollars







the thirties.

The value of imports in our National Accounts statistics is an aggregate consisting of imports of merchandise and of payments for services rendered to Canadians by nonresidents (including interest and dividends paid for the use of foreign capital), and of adjustments that usually were small and were omitted.

Diagram No. 13 gives these subdivisions of total imports, (adjustments omitted) on semilogarithmic graph. One can see that total imports resembled imports of merchandise more closely than payments for services rendered by nonresidents. Imports of merchandise before the war changed directions the same year that the total imports did and were more volatile in comparison with the total of Canadian imports. Payments for services rendered by nonresidents were quite stable before the war.

There were exceptions to these rules at the end of the war and immediately after but we shall ignore them as our interest is centred around the prewar period.

In **Part II** of this **study** our attention will be concentrated on exports of merchandise as this series was responsible for most of the changes in total exports. Very little attention will be paid to imports and only imports of merchandise will be considered as this series was responsible for most changes in **total** imports.

The first question examined here was the pattern of Canadian exports. Although a list of countries that traded with Canada was a long one two countries alone took most of Canadian exports of merchandise. Usually the United Kingdom and The United States





Diagram No.13.

Imports of Merchandise and  
Services, Canada, 1926-1950.  
In Millions of Current Dollars.  
Source: Table 16.

total imports,  
imports of goods,  
services rendered by  
nonresidents.





absorbed about 60-70 per cent of these exports and during the war (1943) their share rose to 93.4 per cent of total Canadian exports of merchandise.

Diagram No. 14 illustrates the distribution of Canadian exports to these two countries. Our interest will be concentrated on the prewar period, and here two subperiods with different patterns of change can be distinguished.

Previous to 1929 the movements of total exports of goods were apparently dominated by exports to the United Kingdom. Both series declined from 1926 to 1927, increased slightly in 1928 and then declined. Both series, however, differed in the rate of increase and decline, the exports of goods to the United Kingdom declining more rapidly and increasing less rapidly than did the total export of goods. Exports of goods to the United States increased steadily from 1926 to 1929 and declined subsequently.

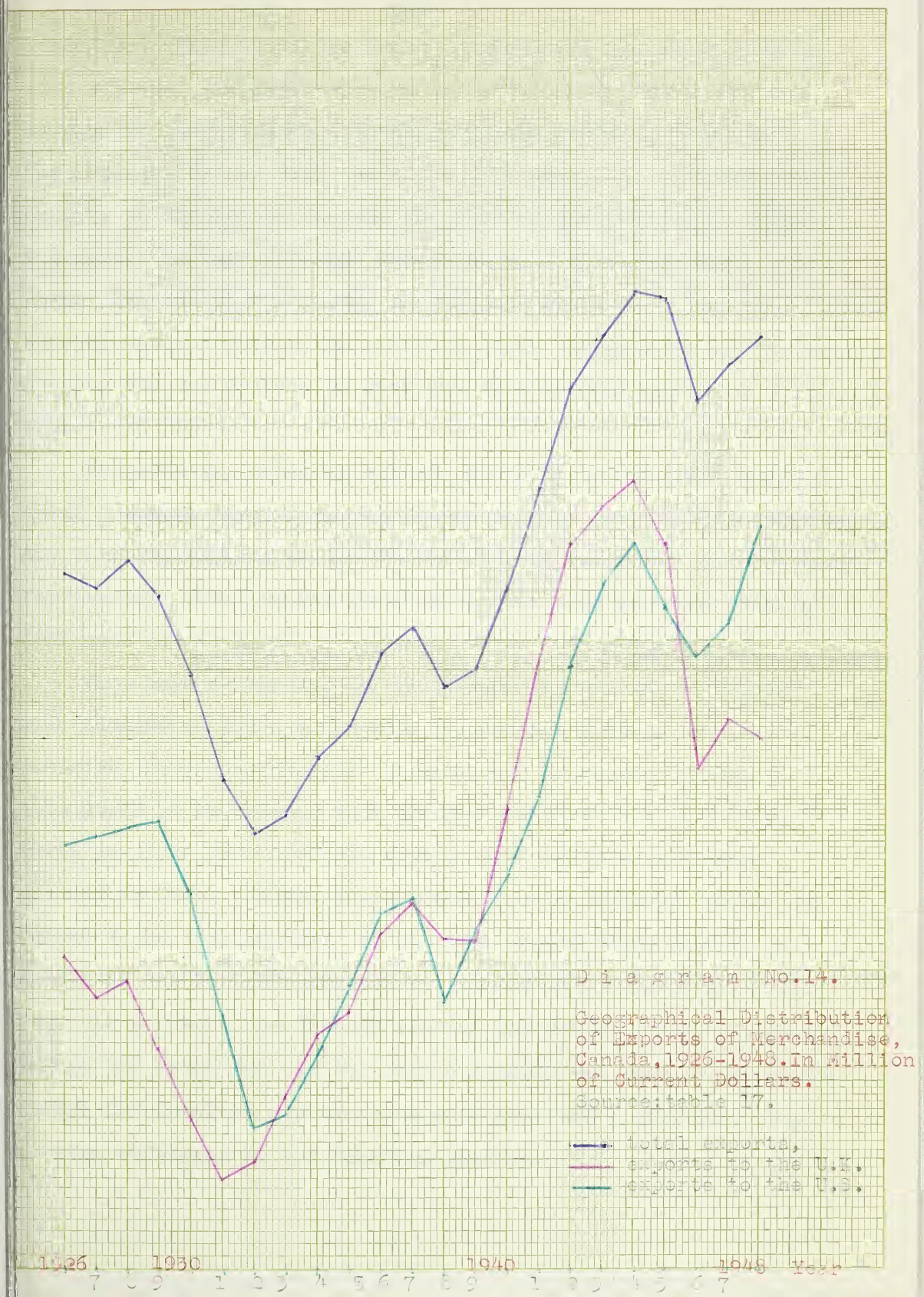
From 1930 to 1939 movements of total exports of goods resembled movements of exports to the United States. Both series declined to 1932, increased to a peak in 1937 and declined to a trough in 1938. Exports to the United Kingdom did not conform so well but also did not differ so much as did total exports and exports to the United States in the preceding period. Exports to the United Kingdom reached a trough in 1931, increased to 1937 and declined in 1938. Except for the one year lead in 1931 over the total exports of goods, their movements corresponded to the movements of total exports of goods and with those of exports to the United States.

In absolute figures exports to the United Kingdom in the late twenties were less than exports to the United States and were





illions of Dollars





declining. Exports to the United States were increasing during this period. The depression of the 1930's initiated important changes in this relation. Exports to the United Kingdom led the recovery by one year and after 1933 equalled, approximately, exports to the United States, the rate of increase being nearly the same. In the 1937-1938 recession this picture changed once more. Exports to the United States declined steeply but recovered earlier with a low point in 1938. Exports to the United Kingdom did not decline so much but this decline continued until 1939.

Summarizing, Canadian exports declined in the late twenties mainly because exports to the United Kingdom declined but during the thirties exports to the United Kingdom recovered part of their importance. They led the recovery by one year and from 1933 to 1937 were nearly equal to exports to the United States.

This role of exports to the United Kingdom can be linked with changes in British national income and British economic policies pursued during the twenties and thirties. In Part I of this study it was stated that British national income in money terms declined from 1929 not from a peak but from a plateau reached in 1927. During these years British national income appeared to be very stable. It was also stated that this was a result of the deflationary policy pursued after the first world war. As a result the British economy was comparatively depressed during the twenties. As the United Kingdom was such an important market for Canadian exports this must have had a similarly depressing influence on the Canadian economy.





Vernon W. Malach 1/ arrived at the conclusion that Canada's expansion during the early twenties was out of pace with that of the United States and the United Kingdom. He based this conclusion on study of sixteen Canadian, British and American series during the period 1921-1924 and 1924-1929. In the first period Canada's development lagged behind that of the other countries. The other countries showed larger gains in nearly all series. During the second period Canada was recording the greatest gains and the United Kingdom the least.

Prof. Malach was also interested in the question of why Canada's economic development was retarded in the early twenties and accelerated later. According to him 2/ , it was due to certain peculiarities in Canadian domestic investment, Canada's exports and Canadian consumption. The quick rise in prices of raw materials in 1925 and in 1926 was also a contributing factor.

During the second part of the twenties conditions in Great Britain did not improve. National income in money terms reached a plateau and became static. Meanwhile the American economy progressed on the path of cyclical development. National income rose and with it American imports from Canada.

The combined factors of a decline in exports to the United Kingdom and of an increase in exports to the United States caused

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1/ Vernon W. Malach, 'External Determinants of the Canadian Upswing, 1921-9', The Canadian Journal of Economics and Political Science, Vol. XVII, February to November, 1951, pp. 50-51.

2/ Ibid., p. 63.



a considerable change in the pattern of Canadian exports. An adjustment process within the Canadian economy was started. Those industries that produced for the British market had either to switch to other markets or remain depressed, while those producing for the American market could expand. The late twenties constituted a transition period. Canada's economy was becoming integrated more and more with the American economy. Steady and rising exports to the United States was the carrot in that change and declining exports to the United Kingdom was the stick. The carrot apparently had a greater pull as rapid economic expansion followed.

It is possible that the change in exports and resulting expansion could have been described in terms of an export or foreign trade multiplier of which several variations exist 1/. Whatever the choice of multiplier deemed to be most appropriate to the situation, the actual computation beyond this point is fraught with difficulties in method and assumptions 2/. These difficul-

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1/ Gottfried Haberler, Prosperity and Depression, (third ed., enlarged by Part III, League of Nations, Geneva, 1941), p.461-473.

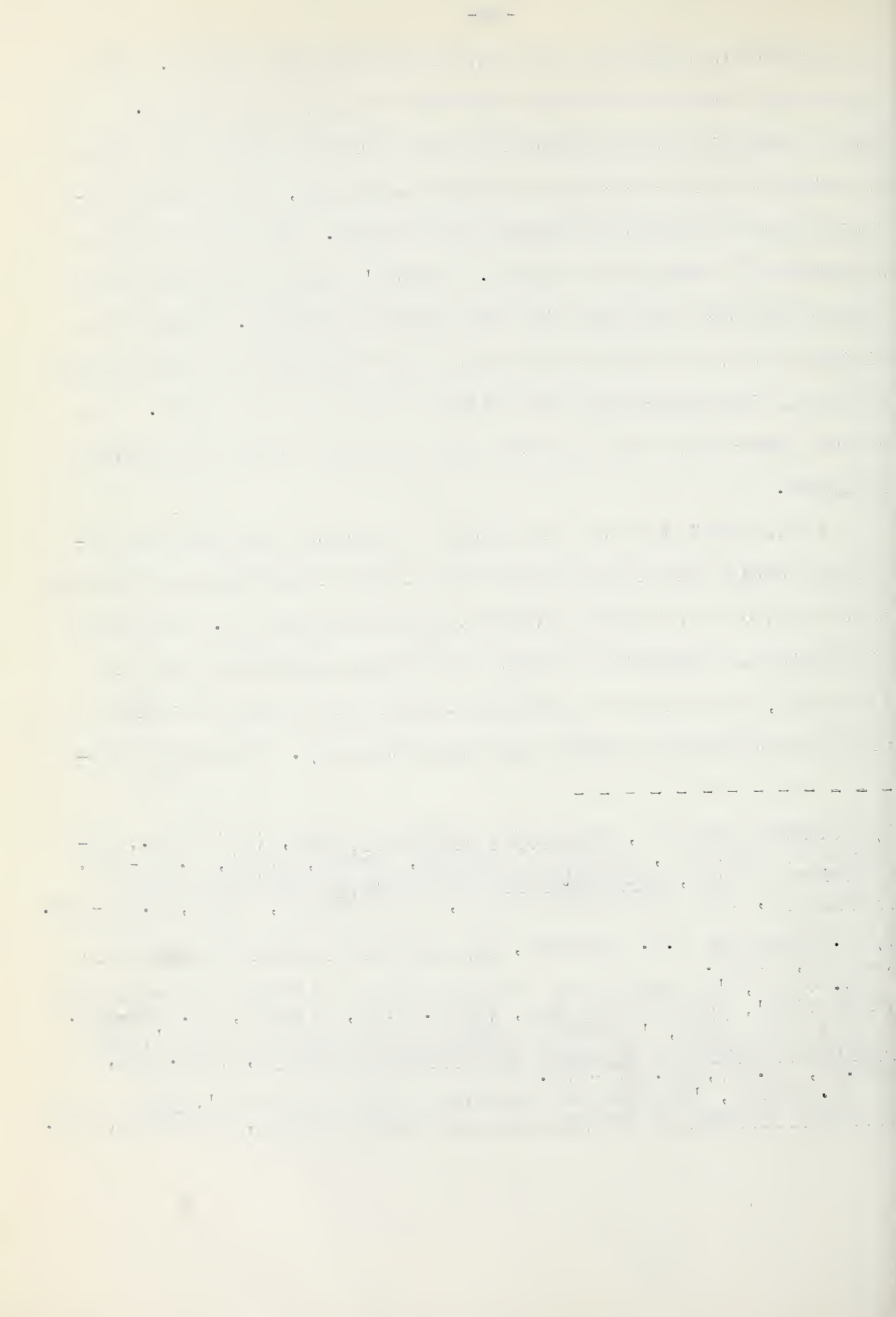
Fritz Machlup, International Trade and the National Income Multiplier, (The Blakiston Company, Philadelphia, 1943), pp.116-125.

2/ C. Clark and J.G. Crawford, The National Income of Australia, (London, 1938).

C. Clark, 'Determination of the Multiplier from National Income Statistics', Economic Journal, (Sept. 1938, London), pp. 435-443.

The Chun Chang, 'A note on Exports and National Income', The Canadian Journal of Economic and Political Science, (Vol.XIII, Aug.47, No. 3), pp. 276-278.

Dr. Munzer, 'Exports and National Income in Canada', The Canadian Journal of Economic and Political Science, (February, 1945.)





ties have consistently placed obstacles in the way of more thorough studies of Canadian exports and their relationship to changes in the national income. For instance, A.E. Safarian 1/ writes:

'Logically, the next step should be computing of an export multiplier, but it is a step which the writer hesitates to take. Some estimates place it about 1.5 over this period, and this may be useful as an average, but the intercorrelation of the variables involved, and the small number of observations which annual data provide, make the validity of a solution, of this problem by correlation techniques rather dubious.'

There was an additional factor that facilitated this transition for Canada. During the late twenties American investment in Canadian industries grew substantially. The following figures give values of direct American investment, (i.e. includes branches, subsidiaries and controlled companies) in all Canadian businesses in current dollars.

TABLE

American Direct Investment in Canada, Selected Years, 1926-1939.

Year	2/	<u>1926</u>	<u>1930</u>	<u>1933</u>	<u>1939</u>
Capital stock		1000.0	1329.4	1271.6	1289.2
Bonds		187.6	336.3	338.3	305.8
Other investment		<u>214.9</u>	<u>327.0</u>	<u>323.4</u>	<u>285.9</u>
Total		<u>1402.5</u>	<u>1992.7</u>	<u>1933.3</u>	<u>1880.9</u>

1/ A.E. Safarian, 'Foreign Trade and the Level of Economic Activity in Canada in the 1930's', The Canadian Journal of Economics and Political Science, (August, 1952, No. 3, Vol. 18), p. 342.

2/ U.S. Direct Investments in Canada, (DBS, Ottawa, 1949), p. 1.



With increasing American direct investment the business atmosphere in the United States could spread more easily into Canada. Many decisions and forecasts relating to Canadian businesses were made directly in the United States or were taken by American nationals sitting on boards of Canadian companies.

The next question to be examined is how this change was reflected in the composition of Canadian exports. A very broad division was made by dividing Canadian exports according to the degree of manufacture. No consistent data were available (some data referred to fiscal years, some to calendar years), but a consistent trend was nevertheless revealed. Fully manufactured goods fluctuated from 36.6 per cent to 56.7 per cent of all goods exported, and the usual level was about 40 per cent. Raw materials fluctuated from 26.4 per cent to 48.5 per cent with the usual level about 35-40 per cent of total exports of goods. Partly manufactured goods fluctuated from 14.3 per cent to 38.6 per cent with the usual level about 20 per cent. Something like a trend was visible in raw materials and partly manufactured goods. The first were losing their importance over the time and the second gaining. Raw materials represented in the late twenties about 45 per cent and later declined in importance while halfproducts represented at the same time only 15 per cent and later increased in importance.

One could say that the increase of exports to the United States and the decline of exports to the United Kingdom did not lead to substantial changes in the fully manufactured group in Canadian exports. There was a substitution of raw materials by



halfproducts but this became visible later. If there was a change from one kind of exports to another it must have been within the group of exports here observed. Raw materials must have been substituted for other raw materials, halfproducts for other halfproducts and manufactures for other manufactures.

Imports of merchandise were made up differently: the majority of these here consisted of manufactures (50-60 per cent); halfproducts represented about 7 per cent; and raw materials were responsible for the balance. Raw materials were substituted to some extent for halfproducts but the decline in halfproducts and increase in raw materials were comparatively small.

Perhaps more detailed study of different kinds of Canadian export goods will exhibit changes in the composition of their values over time. There was an abundance of data with regard to exports of goods grouped according to the kind of product. The three groups selected here for detailed examination should be representative of total exports since they made up about 75 per cent of that total.

The groups selected were to a large extent raw materials and halfproducts but each of them contained at least an admixture of fully manufactured products. The groups under study were:

- 1/ agricultural and vegetable products (not including animals and their products),
- 2/ wood, woodpulp and paper,
- 3/ nonferrous metals.

For comparison only our data contained also figures for the group consisting of iron and its products. This group before the

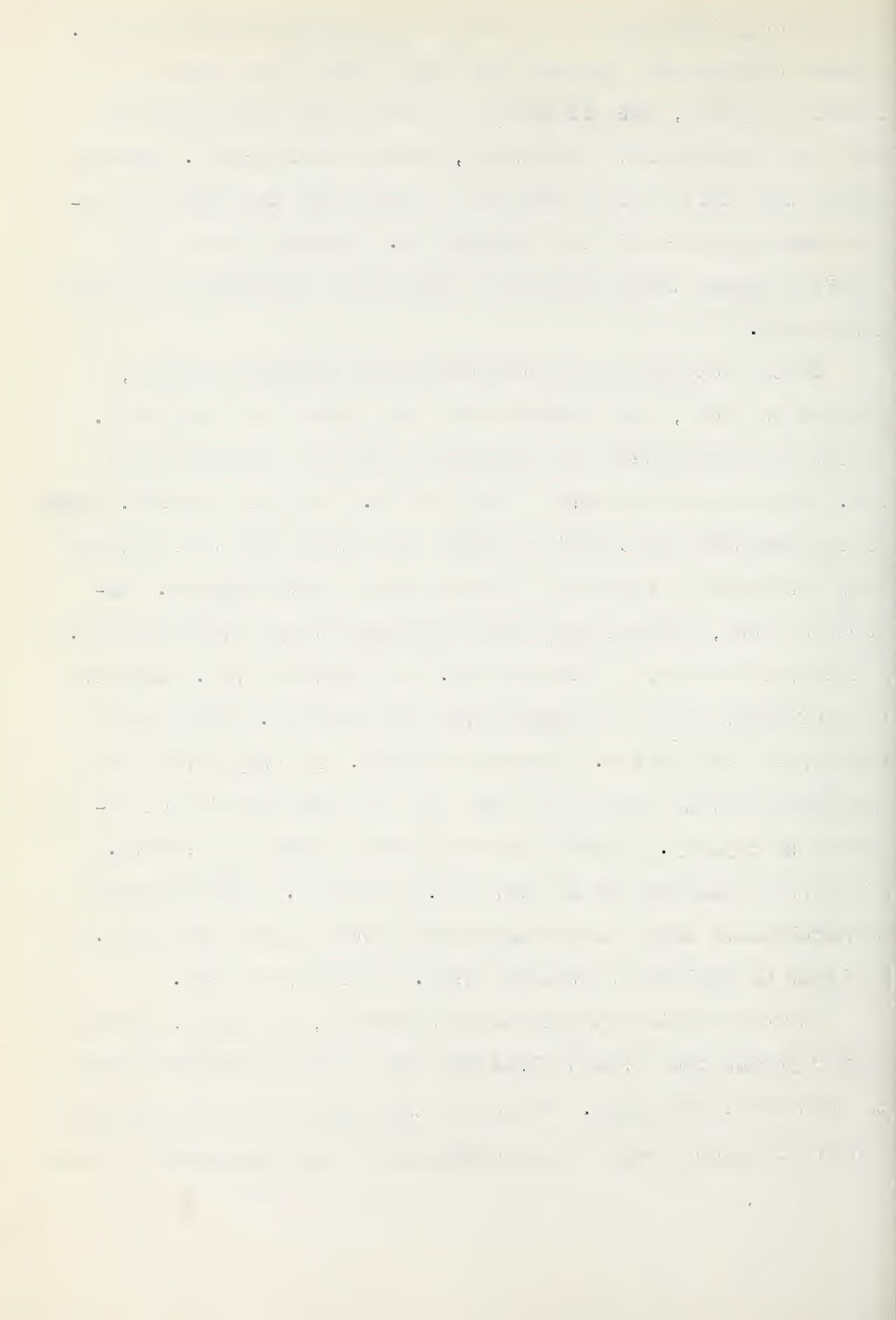




war was comprised mostly of exports of manufactures (machinery). Postwar development increased the importance of the group in Canadian exports, part of which was due to new discoveries of vast iron ore deposits in Ontario, Quebec and Labrador. One may expect that this rising trend will continue as the American market needs iron ore and the proposed St. Lawrence seaway will provide cheaper transportation to the highly industrialised Great Lakes area.

Certain changes in the composition of Canadian exports, grouped as above, were evident over the periods of this study. Exports of agricultural and vegetable products increased from 588.3 millions of dollars in 1926 to 773.0 millions in 1949. Since in the meantime the Canadian dollar lost about half of its value this was really a decline in the volume of these exports. Exports of wood, woodpulp and paper increased from a value of 286.3 millions of dollars in 1926 to 875.3 millions in 1949. Exports of nonferrous metals increased even more from 74.7 millions of dollars in 1926 to 426.6 millions in 1949. In comparison with nonferrous metals exports of iron and its products did not increase so rapidly. Exports of this group brought in 1926 75.6 millions of dollars and in 1949 292.9 millions. Total exports of merchandise based on the same statistical source were 1261.2 millions of dollars in 1926 and 2992.0 millions in 1949.

Our chief interest will be concentrated, as before, on the prewar period from 1926 to 1938 but some attention will be paid to postwar figures also. Trends in the values of these different groups of exports were recognizable and it was interesting to note



changes in the composition of Canadian exports during the period.

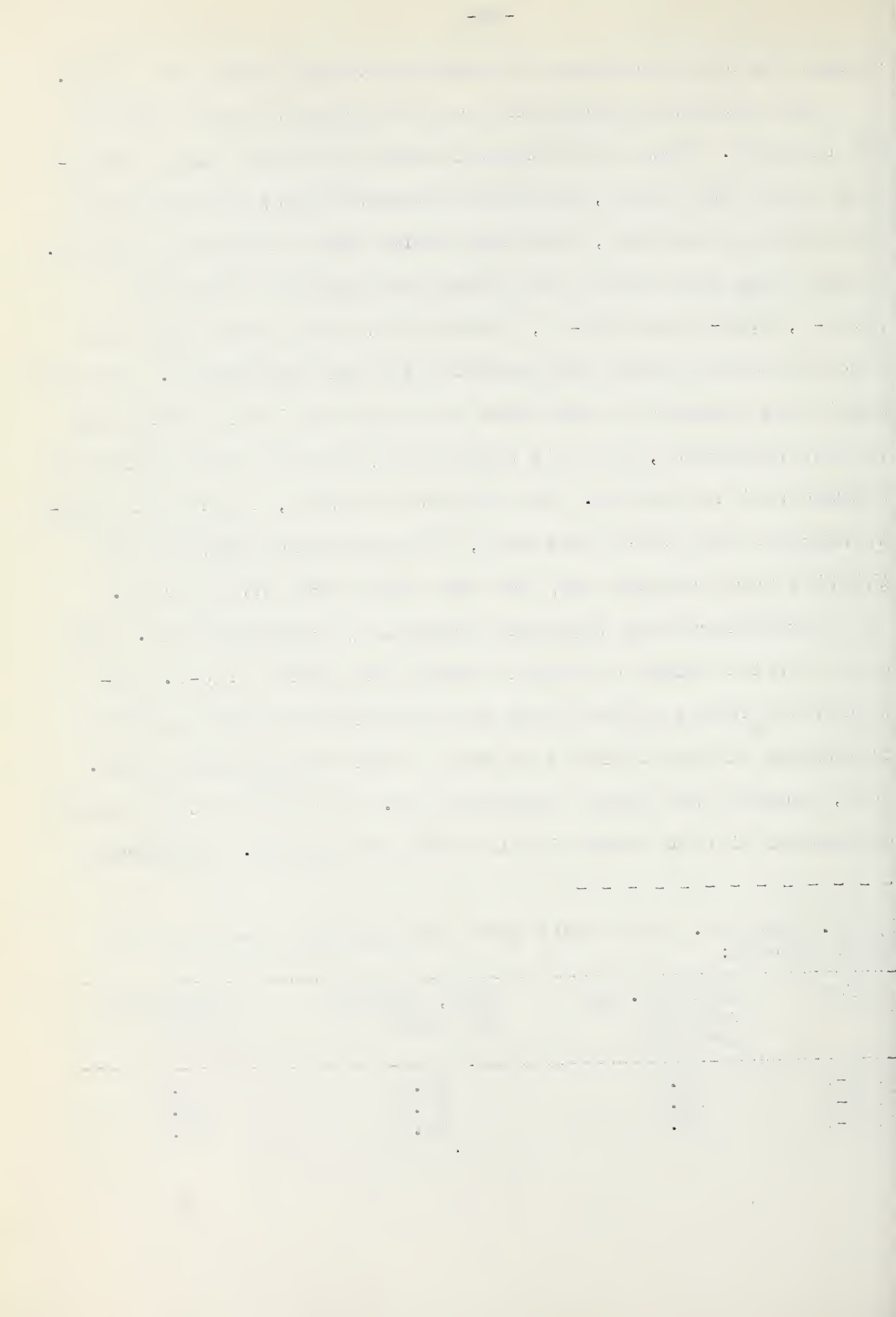
The percentage which each group comprised of total exports was computed. These percentages showed substantial annual variation within the period, but when arithmetic means were computed for certain subperiods, important trends were immediately visible. It was found that within the subperiods mentioned previously (1926-9, 1930-8 and 1946-9), fluctuations were rather small and hence arithmetic means were computed for such subperiods. Economic conditions appeared to have been changing very little during the various subperiods, but this could hardly be said about conditions between such subperiods. For practical reasons, to avoid the disturbance of the 1937-8 recession, the arithmetic means for the thirties were computed only for the period from 1930 to 1937.

Agricultural and vegetable products 1/ represented 46.3 per cent of total values of exports during the period 1926-9. Although the values exported and the percentages of total exports fluctuated it was difficult to find a trend during this period. Wood, woodpulp and paper represented 22.4 per cent of total values of exports with no trend visible within the period. Nonferrous

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1/ Cf. Table 27. This table gave the following percentages of total exports:

Period	Agricult. and vegetable products	Wood, woodpulp and paper	Nonferrous metals
1926-9	46.3	22.4	7.6
1930-7	34.3	24.9	16.6
1946-9	24.4	29.8	12.1





metals represented 7.0 per cent of total values of exports and a trend was visible even within the period. Exports of this group of goods were increasing. In the calendar year 1926 they represented only 5.9 per cent of total values of exports and gained steadily so that in the fiscal year 1929 they represented 8.3 per cent.

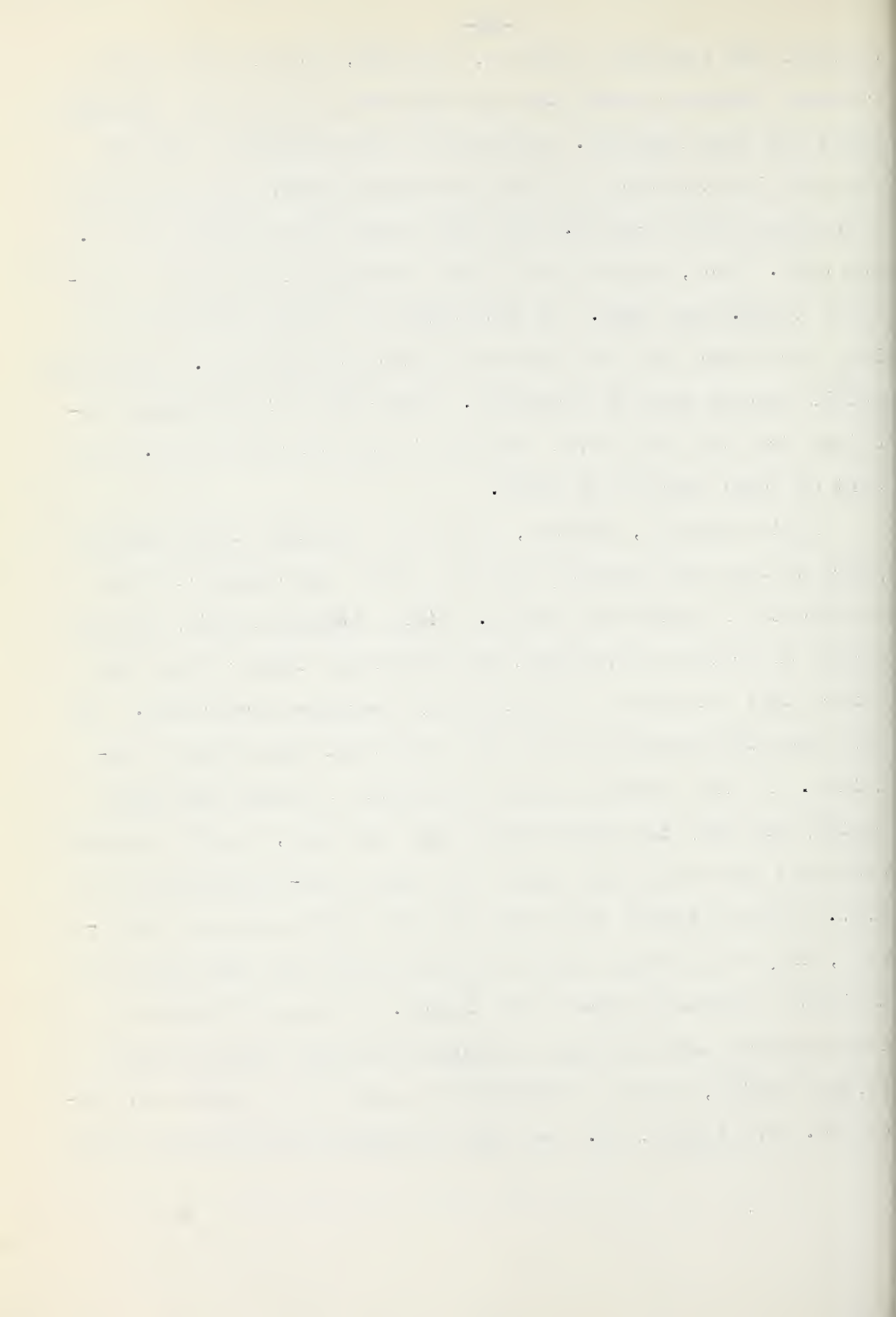
The second period from 1930 to 1937 showed greater changes in all three groups of exports. One could even subdivide this period into two parts: a decline from 1930-1933 and a recovery from 1934 to 1937 as the percentages appeared to cluster around certain average values within these subperiods. Agricultural and vegetable products lost much of their importance in exports during this period. During the decline their percentage was lower than in the late twenties and after the recovery began, the agricultural group declined in importance even further. The arithmetic mean of percentages for the whole period is 34.3 per cent only. Exports of wood, woodpulp and paper improved their position a little and represented for the whole period 24.9 per cent of total value of exports, but within the subperiods, this improvement occurred entirely during the decline. When recovery started this group of exports represented even less of total exports than in the late twenties. Nonferrous metals showed spectacular gains and their percentage for this period increased from 7 per cent in the late twenties to 16.6 per cent. In this series the increase was more readily visible in the second subperiod of recovery.

The postwar period from 1946 to 1949 was too short to permit far reaching conclusions. Two export series, however, viz., agri-



cultural and vegetable products, and wood, woodpulp and paper revealed further changes that corresponded to the trend observed since the late twenties. Agricultural and vegetable products declined in importance in total Canadian exports and its mean of percentages fell from 46.3 per cent in the late twenties to 24.4 per cent. Wood, woodpulp and paper increased their share in exports to 29.8 per cent. In both cases one could think that the long term trend did not end with the second world war. Nonferrous metals exports were an exception. Their mean of percentages declined from the high level achieved in the thirties to 12.1 per cent of total exports of goods.

It is doubtful, however, if one can consider three postwar years to be a long enough period to reveal any change of trend in exports of nonferrous metals. Mining depends heavily on the amount of previous investment and it usually takes a long time before this investment is followed by increased production. We also know that during the war all investment was severely curtailed. In the postwar period investment in mining increased rapidly and many new discoveries were also made, but the results could not have been felt within the short post-war period up to 1949. One can expect that when data for later years are available, they will reveal greater relative gains for this group in the total exports of goods from Canada. Perhaps the trend in these exports shown during the thirties stopped rising in the postwar period, but it is difficult to see why it should have declined. The figure, 12.1 per cent of nonferrous metals in total



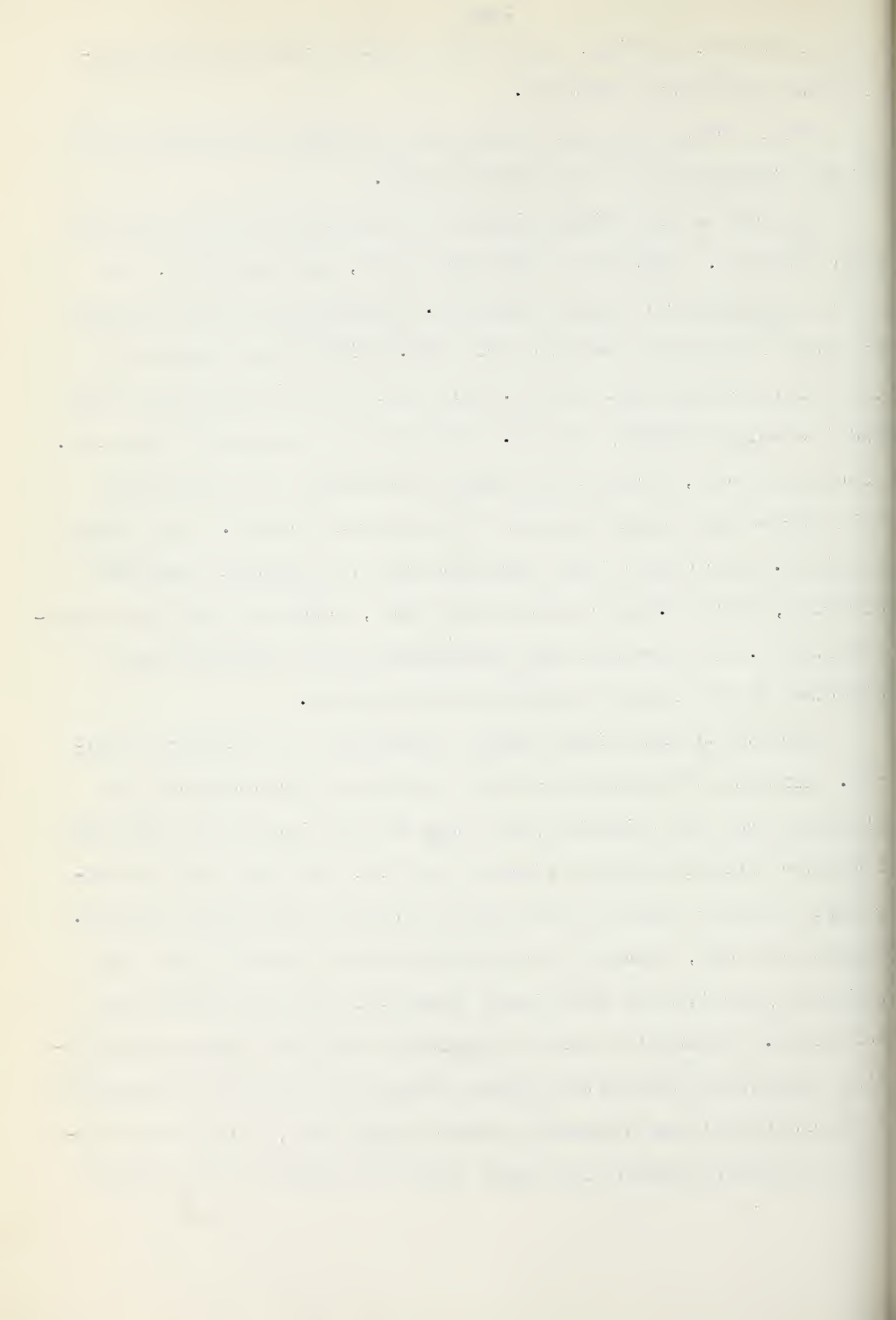
exports for this period, understates their probable present importance in Canadian exports.

These trends can be followed more closely in exports to the United Kingdom and to the United States.

Exports to the United Kingdom showed weaknesses during the late twenties. Exports to this area fell, rose and fell, but there was a general trend downwards. Agricultural and vegetable products in exports declined from 339.3 millions of dollars in the calendar year 1926 to 310.2 millions in the fiscal year 1928 and increased slightly to 325.1 millions in the fiscal year 1929. Exports of wood, woodpulp and paper increased a little during this period and so did exports of nonferrous metals. In average about 55.3 per cent of all agricultural and vegetable products exported, about 6.2 per cent of all wood, woodpulp and paper exported and 16.0 per cent of all nonferrous metals exported were directed to the United Kingdom in this period.

Exports to the United States fluctuated in a different manner. Exports of agricultural and vegetable products declined slightly from the calendar year 1926 to the fiscal year 1928 and increased slightly in the fiscal year 1929 but they did not represent a larger share of the total exports to the United States. Exports of wood, woodpulp and paper declined steadily from the calendar year 1926 to the fiscal year 1929 but the decline was not steep. Meanwhile nonferrous metals more than doubled in Canadian exports to the United States offsetting not only the decline in agricultural and vegetable products and wood, woodpulp and paper but pushing upward the total value of exports to the United





States. Other exports of lesser importance must have also been rising as the increase in total exports to the United States during the late twenties was a little higher than the increase in exports of nonferrous metals. Ten per cent of exports of agricultural and vegetable products, 83.9 per cent of wood, woodpulp and paper, and 49.3 per cent of nonferrous metals were directed to the United States. These percentages changed similarly to the changes in absolute figures of these exports to the United States: exports of agricultural and vegetable products, wood, woodpulp and paper were slowly declining and exports of nonferrous metals rising.

During the thirties exports to the United Kingdom fluctuated with the changes in British national income. They were the lowest in the fiscal year 1932 except for the exports of nonferrous metals which were the lowest in the fiscal year 1930. The increase in exports of nonferrous metals was very spectacular. They increased from 1930 to 1937 to five times the 1930 values and in the 1938 recession the figure was seven times the 1930 value. In the thirties on an average 54.1 per cent of exports of agricultural and vegetable products, 11.5 per cent of exports of wood, woodpulp and paper and 28.2 per cent of exports of nonferrous metals were exported to the United Kingdom. The last two groups of exports found an increasing market in Great Britain which in case of nonferrous metals became a customer for one third of Canadian exports in this line.

Exports to the United States during the thirties changed less than those to the United Kingdom. All three groups of exports fluctuated with changes in American gross national expenditure and reached their lowest level in the fiscal year 1933.



About 12 per cent of exports of agricultural and vegetable products, 72.3 per cent of exports of wood, woodpulp and paper and 50.5 per cent of exports of nonferrous metals were directed to the United States.

The postwar exports to the United Kingdom exhibited wide fluctuations, as did exports of agricultural and vegetable products and those of wood, woodpulp and paper. Exports of nonferrous metals showed a rising trend, nearly doubling from 1946 to 1949. On an average, United Kingdom received only 42.7 per cent of total Canadian exports of agricultural and vegetable products, 12.3 per cent of wood, woodpulp and paper and 33.4 per cent of nonferrous metals. As these were years of bulk purchases, Marshall Aid, etc., the figures might be deceptive.

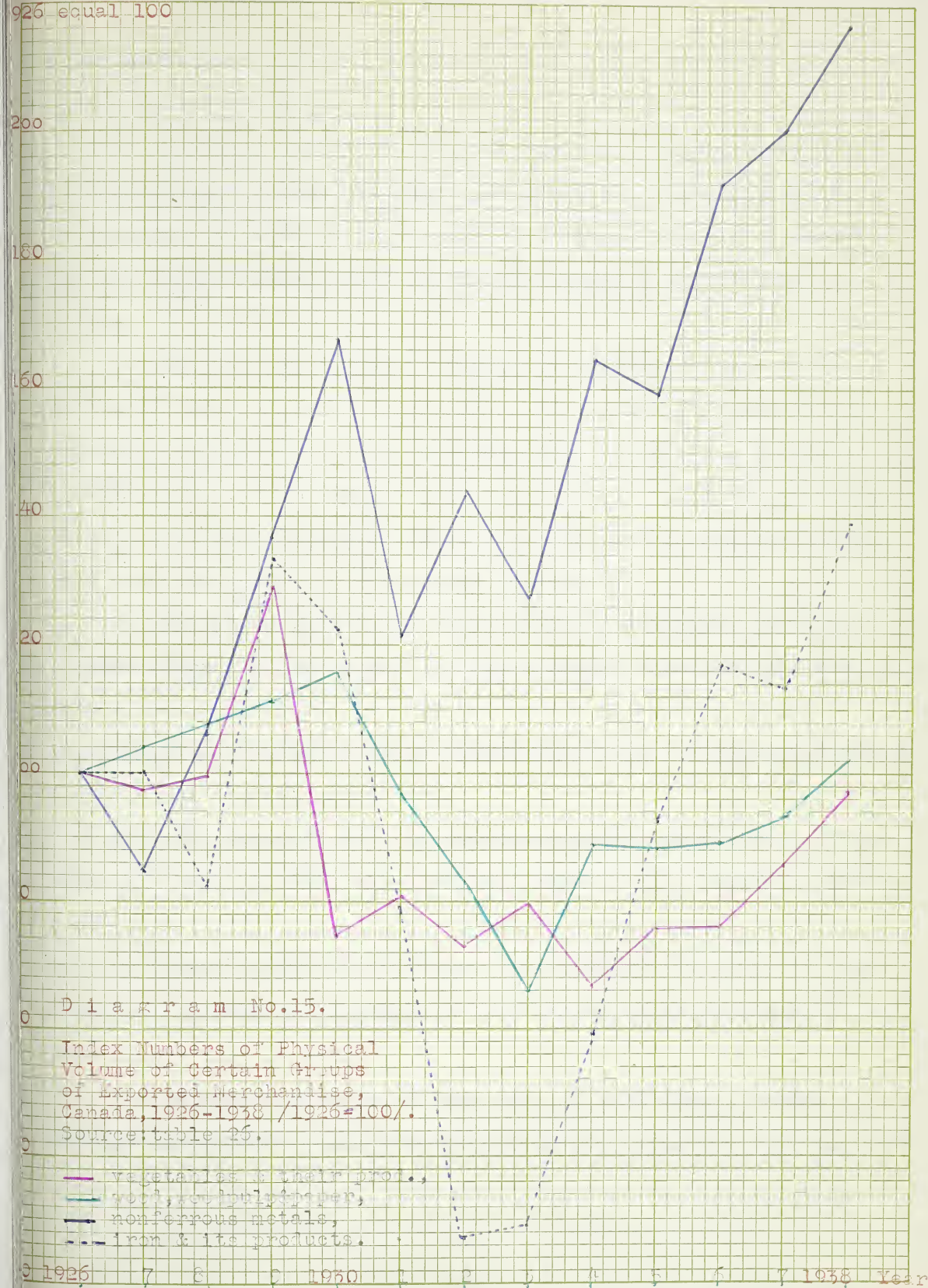
Canadian exports to the United States expanded greatly. Wood, woodpulp and paper exports increased 1.5 times from 1946 to 1949, and nonferrous metals exports nearly doubled in value. Even agricultural and vegetable products after a decline in 1947 gained substantially. To a certain degree a high level of price supports in the United States must have given Canadian exporters a chance to expand exports of agricultural and vegetable products to a country that had agricultural vegetable surpluses itself. On an average 18.2 per cent of Canadian agricultural and vegetable products exports were directed to the United States in postwar years. Figures for nonferrous metals were 40.2 per cent and 75.2 per cent for wood, woodpulp and paper.

So far we have analysed Canadian exports by studying changes in the values of certain export series. Diagram No. 15 gives the





Index Numbers  
1926 equal 100





index numbers of physical volume of these exports grouped as in the preceding pages.

In the first period of the late twenties changes in volume of exports were rather moderate. At first all three groups of our exports declined in volume but soon other increases occurred and all three series in 1929 attained volumes above the 1926 level.

In the thirties diverging movements occurred in all three series of Canadian grouped exports. Exports of agricultural and vegetable products declined from the peak in 1929 to a trough in 1931. Short term fluctuations occurred in the volume of these exports with average level nearly unchanged until 1936 was passed. Then once more the volume exported increased.

The volume of exports of wood, woodpulp and paper continued to rise after 1929 to a peak in 1930. A steep decline followed with a trough in 1933. In 1934 the volume of exports became stabilized at a slightly higher level than that of 1933 and a new increase was visible after 1936.

The volume of exports of nonferrous metals rose steeply from 1929 to a peak in 1930, then declined steeply to a trough in 1931. Short term fluctuations in the volume of these exports occurred with an upward trend which carried the volumes of exports to new heights. The volume of exports of this group in 1938 was more than double that of 1926.

The volume of exports of iron and its products was small but for comparison it was also plotted on our diagram. The decline after 1929 was very steep and its trough in 1932 was very



low. Volume of exports had declined in 1932 to less than one third of the 1926 volume. Recovery in the following year was also slow but after 1933 exports rose steeply. In 1938 this group of exports showed a volume higher than that of 1929. The violent swings in this series could be expected as it represented, to a high degree, exports of fully manufactured goods, and manufactures usually enjoy more stable prices than nonmanufactures but their volume of exports suffers more from depression.

A general remark can be made here about changes in the volume of exports in the thirties. Exports of agricultural and vegetable products and those of wood, woodpulp and paper did not recover to the volume exported in 1929 but volumes of exports of nonferrous metals surpassed it. Also all volumes of our grouped exports did not decline in 1938 when there was a general decline in economic activity.

From the changes in volumes and in values one could deduce change in prices. Data for an independent study of the changes in prices of Canadian exports and imports were available. The next chapter will deal with price changes in Canadian exports, imports, and terms of trade.





## Chapter VIII. TERMS OF TRADE

Canadian exports and imports, in terms of current and constant dollars, have been examined in the preceding chapter. Although prices are implicit in the relationship of these series some changes and relationships in the Canadian economy were revealed more readily by a separate study of prices. A comparison of external and internal prices, based on the composition of Canadian exports and imports, has been made. In the period more than half of Canadian exports were made up of foodstuffs and raw materials, while two thirds of Canadian imports were made up of fully manufactured goods.

Diagram No. 16 compares the price index of fully manufactured goods and the price index of imports. One would expect that the price index of manufactures should be less volatile than the price index of imports as manufactures represented only a proportion, though large, of all imports. Prices of raw materials and partially manufactured goods usually fluctuated more during business cycles and this would magnify the swings in the price index of imports. This led us to expect that the price of imports should be below the price index of manufactures at troughs and above at peaks of national income.

In Diagram No. 16, some evidence supporting this is revealed. The spread observed, however, was rather small and its significance is doubtful. Both indexes were based on the same period and so their visible spread measured their comparative movements well. As if complying with the rule, the price index of imports was below the price index of manufactures at troughs in 1933 and 1938 and



Year

1950

9

8

7

6

5

4

3

2

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1940

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2

1

1930

9

8

7

1926

Diagram No.16.

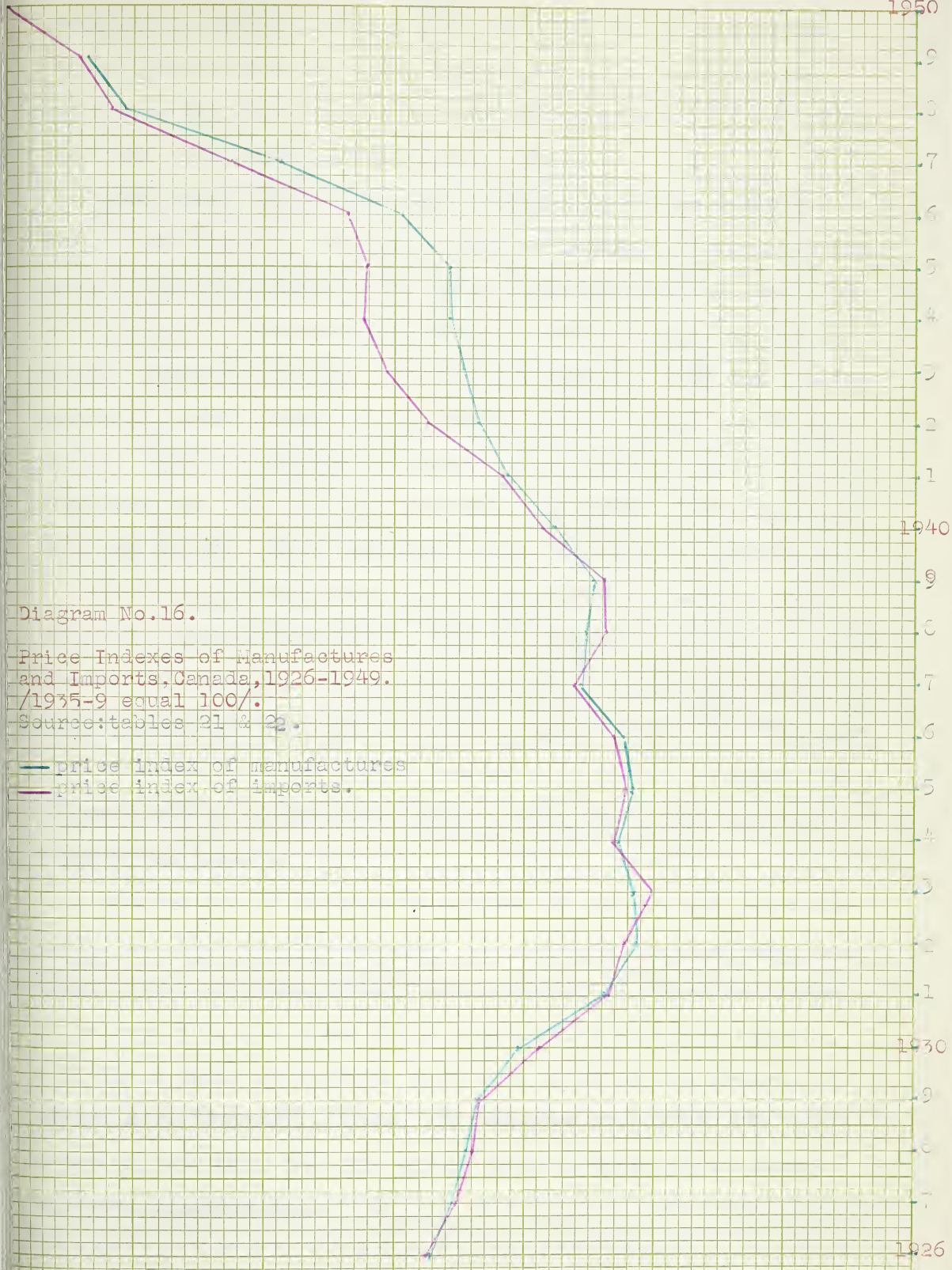
Price Indexes of Manufactures  
and Imports, Canada, 1926-1949.  
/1935-9 equal 100%.

Source: tables 21 & 22.

— price index of manufactures  
— price index of imports.

210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60

Price Index 1935-9 equal 100.







above at the peak in 1937; but for the peak in gross national expenditure in 1929 our price indexes nearly coincided. One could even say that for most of the period before 1939 and after 1946 both price indexes were nearly equal.

Additional deductions could be drawn from this diagram.

First, the upturn in the price index of manufactures in 1932 led by one year the upturn in the price index of imports. This can be explained by the prevalence of goods from the United States amongst Canadian imports. The British recovery from the decline during the early thirties, as indicated by national income statistics, led the American recovery by one year and there are indications that the Canadian recovery also preceded the American by a few months. This was dealt with more fully in Chapter I.

The opposite was true during the 1937-8 recession. The prices of imports declined in 1938 but improved slightly in 1939, whereas the internal prices of manufactures in Canada lagged another year and continued to decline until 1939. This was further evidence that the 1937-8 recession in Canada, despite its moderate effect on national income, could have easily ended in a major depression.

Diagram No. 17 gives price indexes of exports and non-manufactures. Here one would expect the price index of non-manufactures, i.e., of raw materials and partially manufactured goods, to be more volatile since fully manufactured goods in exports, although a small proportion, must have acted on the changes in prices as a dampening factor. The diagram supported this anticipation, and this time the spread between both price indexes was more considerable.



Year

1950

9

8

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1940

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1930

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1926

Diagram No.17.

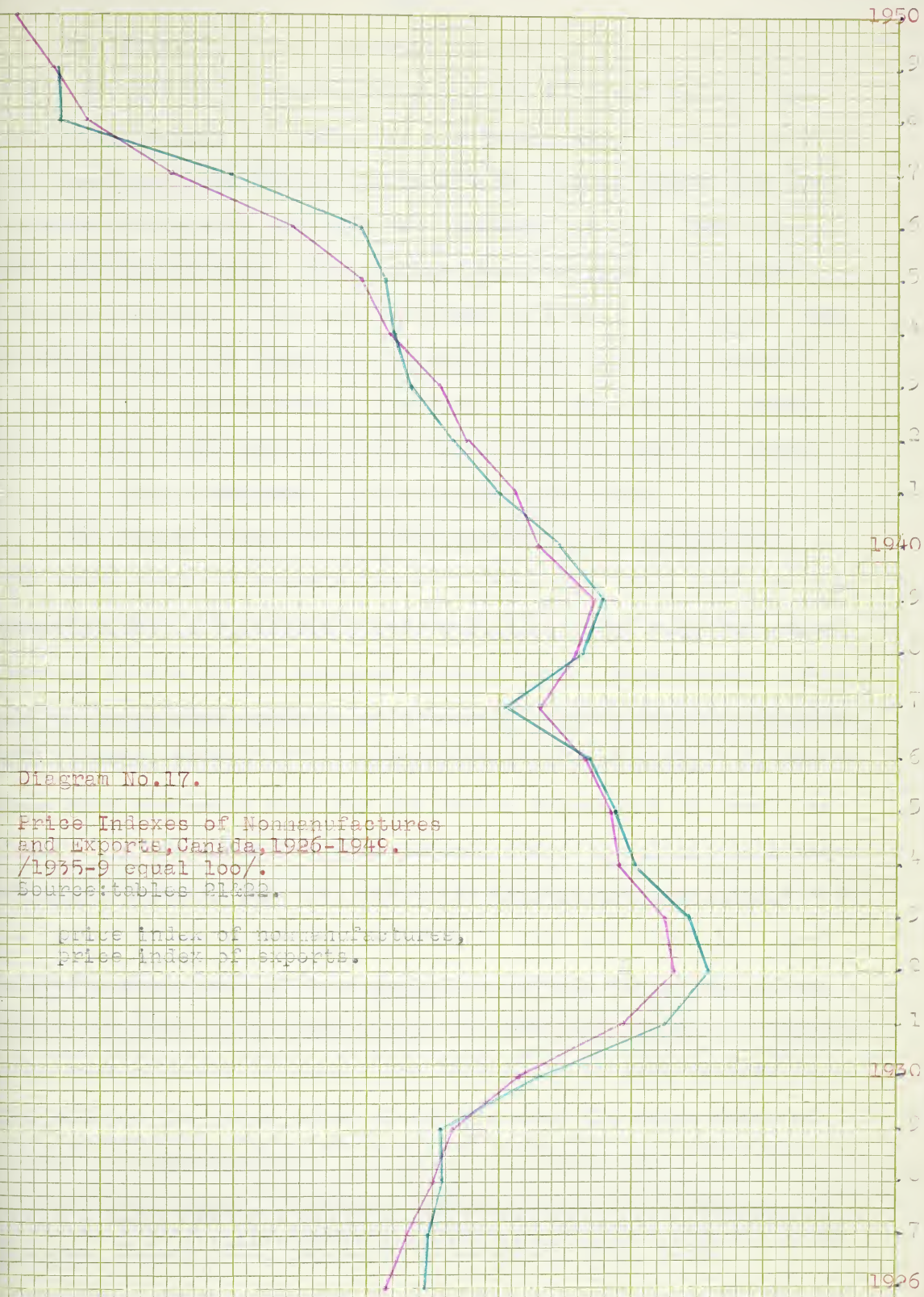
Price Indexes of Nonmanufactures  
and Exports, Canada, 1926-1949.

/1935-9 equal 100/.

Sources: tables 21&22.

price index of nonmanufactures,  
price index of exports.

210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50  
price index 1935-9 equal 100.







The price index of non-manufactures was above the price index of exports at upper turning points of gross national expenditure in 1929 and 1937. If a reduced rate of increase in the Canadian gross national expenditure in 1948 marked a hidden turning point, then the rule was confirmed at this time also. The position of these price indexes was reversed at the lower turning points in 1932, in 1938-9 and in 1946. If a higher rate of increase in the Canadian national product in 1949 marked a hidden lower turning point, then the rule was confirmed even here. Such lower turning point was visible in absolute terms, in the American national product at the same time.

The period from 1926 to 1928 seemed to be an exception. The price index of exports was well above the price index of non-manufactures, a situation found usually in times near the lower turning points of the national product only. This unusual price situation did not continue as prices of exports declined steadily and internal prices of non-manufactures only slightly. As our data were available only for the period subsequent to 1926, one could only speculate how this unusual price situation could have arisen in 1926 or before. Vernon W. Malach mentions a rapid rise in prices of raw materials exported in 1925 and 1926 1/. Such a sudden rise could bring a deviation between the prices of exports and those of raw materials and partially manufactured goods that were consumed at home. And this could be seen in 1926 as a gap between the price index of exports over the price index of

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1/ Vernon W. Malach, 'External Determinants of the Canadian Upswing, 1921-9', The Canadian Journal of Economic and Political Science, Volume XVII, February to November, 1951, p.63.





non-manufactures. For the thirties the movements of internal and external prices followed the expected trend.

Our comparison of internal and external prices could be made even more compact if we used terms of external and internal trade. Terms of Canadian external trade were calculated by dividing the price index of exports by the price index of imports. Similarly terms of Canadian internal trade were calculated by dividing the price index of non-manufactures by the price index of manufactures. Diagram No. 18 gives both terms of trade on a graph. Since exports included manufactured goods and imports included non-manufactures we should anticipate that changes in the terms of external trade would be less extreme than those of internal trade which are calculated in prices of non-manufactures and manufactures only.

The relation between external and internal terms of trade revealed all that we have found from our examination of the price indexes of exports, imports, raw materials and partially manufactured goods and fully manufactured goods. From 1926 to 1928 or perhaps even to 1929 terms of external trade were extremely advantageous to Canada, even if this advantage was rapidly disappearing. For the thirties internal and external terms of trade changed very much as expected. For the postwar period it is difficult to say much about their relations. The period was rather short and international trade was still much affected by extraordinary government actions.

In the preceding chapter the period from 1926 to 1929 was called transitional for Canada as her trade relations were steadily adjusting to expanding trade with the United States and declining trade with the United Kingdom. The depressed conditions in Great Britain after the first world war and the expansion in the American



Year  
195

5

8

7

6

5

4

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1

194

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8

7

6

5

4

3

2

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193

0

8

7

192

0

Diagram No. 18 Canadian Terms  
of Trade, 1926-1949.

— Terms of external trade  
— Terms of internal trade.

Source: tables 21&22.

14 112 110 108 106 104 102 100 98 96 94 92 90 88 86 84 82 80  
Index Numbers 1935-9 equal 1.00.





economy in the 1920's were responsible for this change to the American market. The shift to the United States market induced an increase in total exports despite the decline in exports to the United Kingdom and this, combined with advantageous terms of trade of the period, brought a greater measure of prosperity to Canada. 1/.

So far only broad divisions of prices have been considered, i.e., prices of manufactures and non-manufactures, exports and imports. An examination of the prices of individual groups of exports is revealing. These price indexes of exports grouped as in the preceding chapter, and based on 1926 prices, are given in Diagram No. 19.

Prices of exports of agricultural and vegetable products and of nonferrous metals declined from 1926 to 1928, but prices of wood, woodpulp and paper were rather stable during this subperiod. This stability of prices of wood, woodpulp and paper could be linked with steady expansion of Canadian exports of this group of products to the United States.

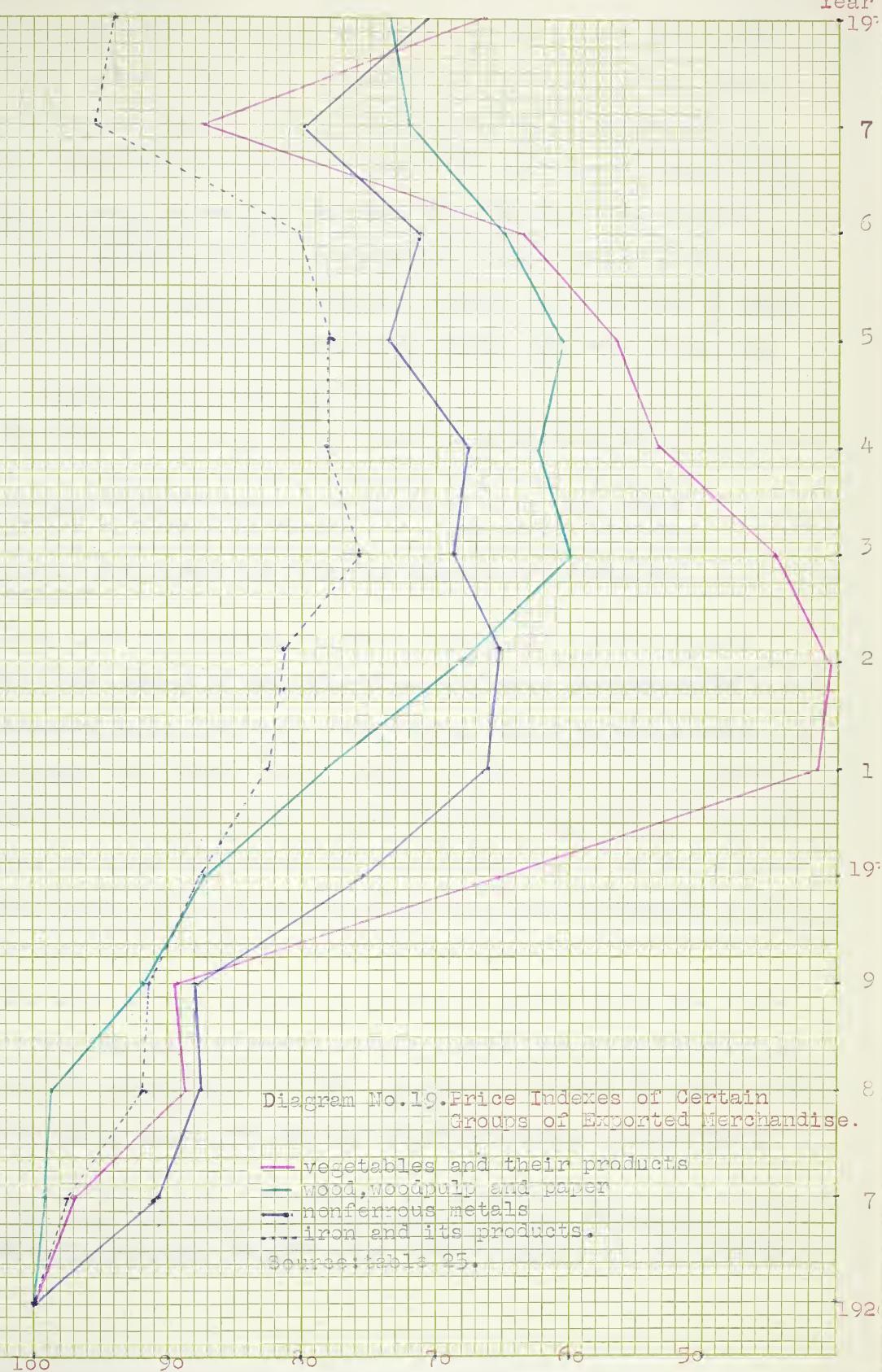
From 1928 to 1929 the situation changed. American prices of newsprint declined sharply for reasons to be discussed more fully later. Prices of exports of nonferrous metals which had previously declined were stabilised under the impact of the boom in the United States. Prices of exports of agricultural and vegetable products which had been declining previously levelled out in 1929 but for a different reason. The harvest in 1929 was expected to be very poor, but that would have not influenced the prices before the

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1/ Ibid., pp.50-51



Year  
19







middle of the year. Canada's own grain price policy was a more important factor. Canadian exporters of grain knew that there was a world shortage of better grade wheat which Canada had in surplus. They tried to benefit from this shortage by increasing the price spread between better and worse grades. As a result there was a substitution in consumption of the poorer grades and Canada had to carry high stocks instead of disposing of them. The export prices of wheat were temporarily improved at the expense of retaining a high surplus.

E. Marcus described this situation as follows 1/:

' . . . Hence a holding movement developed in Canada, moving Canadian wheat prices out of line with world prices of competing wheats . . . the normal premium in the Liverpool market doubling. Much of this hold-back, of course, was financed through the Canadian banks.'

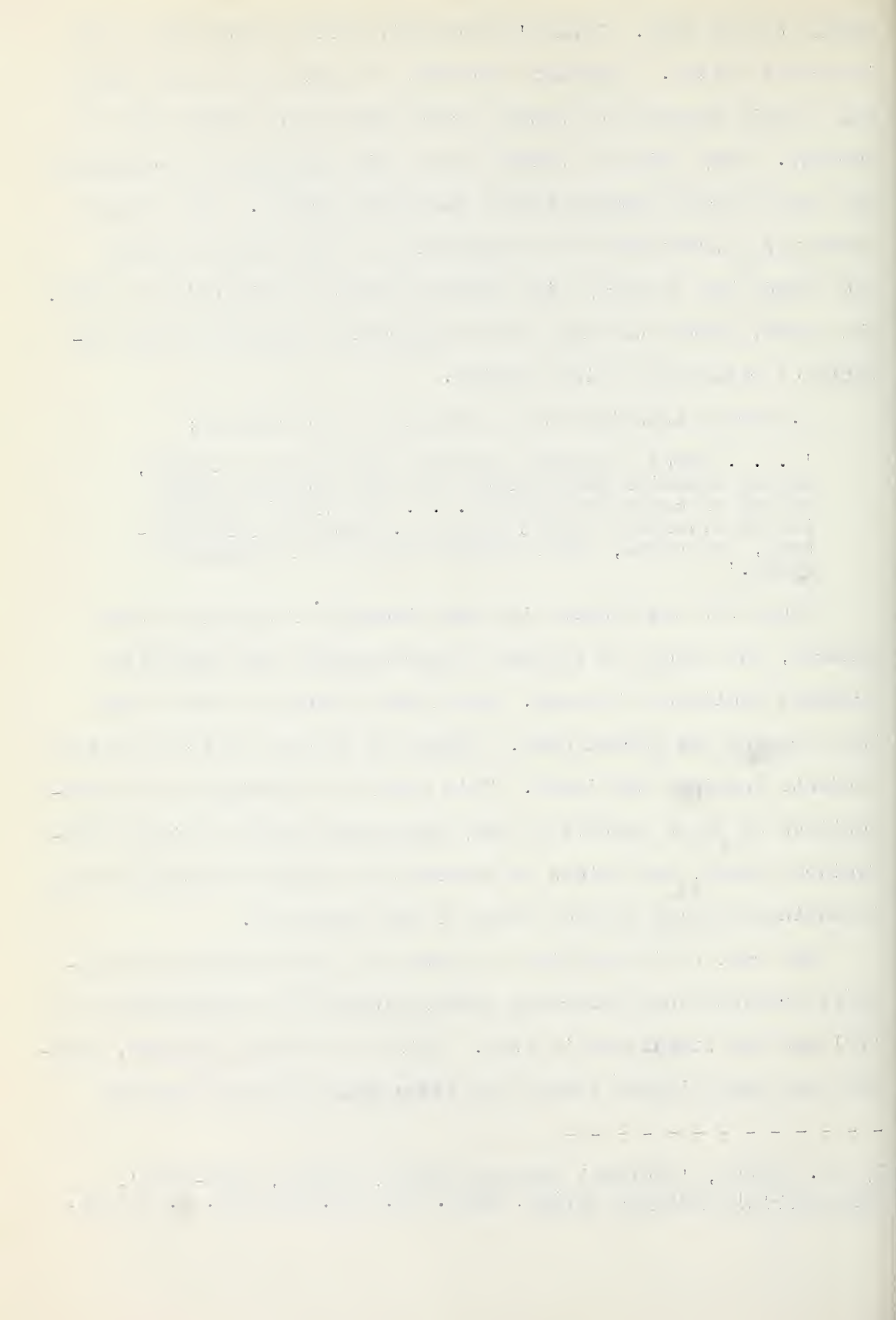
From 1929 the decline in price indexes of exports became general, the prices of exports of agricultural and vegetable products declining the most. The unsold stocks of wheat must have dragged the market down. Prices of exports of iron and its products declined the least. This could be explained by the composition of these exports as they consisted mostly of fully manufactured goods, and prices of manufactures usually fluctuate less in business cycles than do those of raw materials.

The rate of the decline in prices of agricultural and vegetable products and nonferrous metals slowed down considerably in 1931 and was stabilized in 1932. Prices of exports of wood, wood-pulp and paper lagged behind the **first two** groups and reached

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1/ E. Marcus, 'Cyclical Turning Points: Canada, 1927-1939', The American Economic Review, Sept. 53. Vol. XLIII No. 4. P. 575.





their lowest level in 1933. The impact of British recovery starting in 1932 affected the former and could explain these leads.

The subsequent rise in prices was rather slow. Agricultural and vegetable products prices showed a higher rate of increase after 1934 but they had to recover from a very low level and they did not attain the general level of prices of exports until 1936. From 1936 all three series increased to 1937 and declined in 1938 except for prices of exports of wood, woodpulp and paper.

The average price indexes in the thirties were well below the starting prices in 1926. Even 1929 prices, though low in comparison with 1926 prices, were not reached by our three price indexes of these groups of exports in the 1930's.

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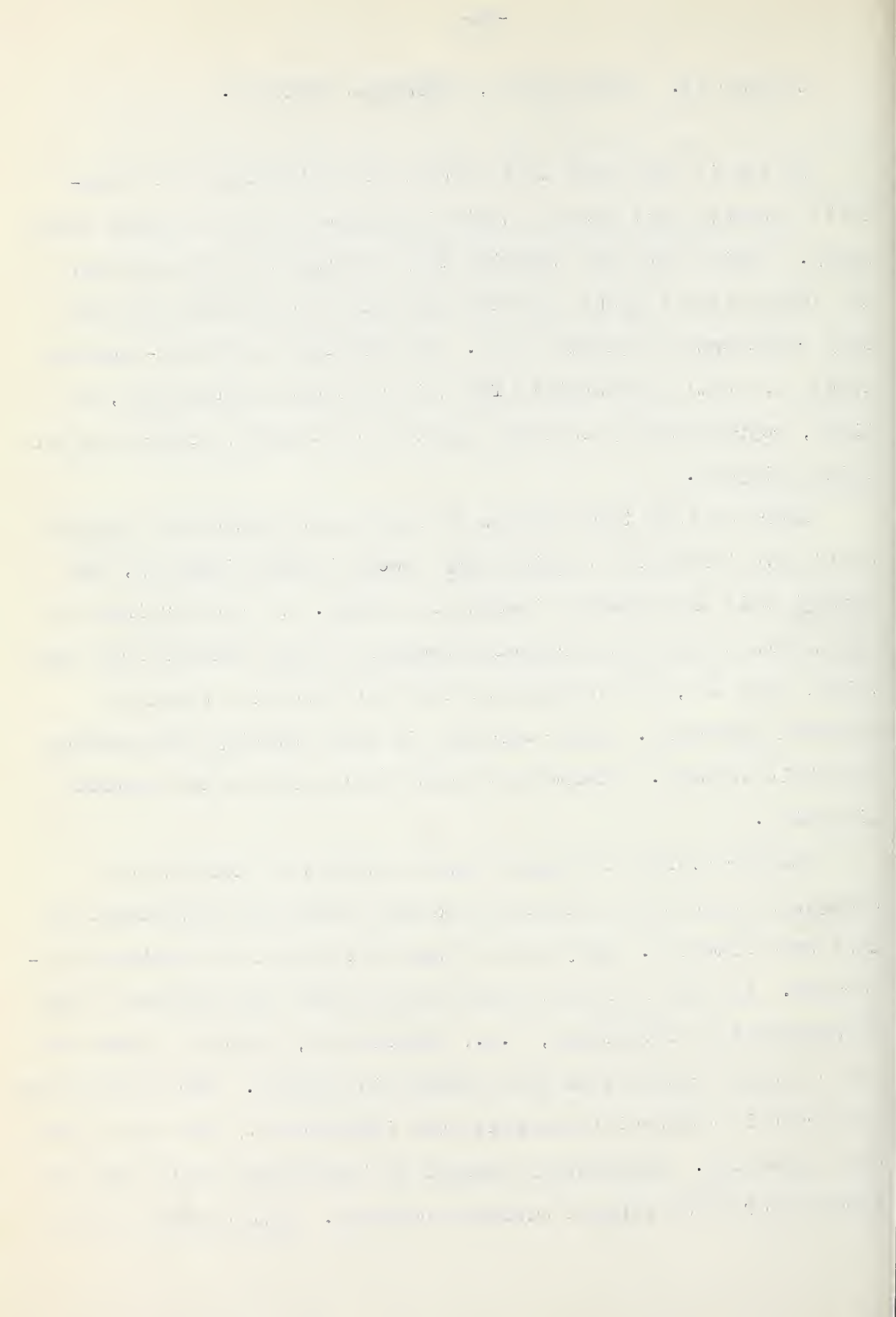
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## Chapter IX. AGRICULTURAL, VEGETABLE PRODUCTS.

So far it was found that exports of agricultural and vegetable products lost much of their importance over the period under study. During the late twenties they represented about half of the values of all goods exported and after the second world war they represented a quarter only. The decline in British-Canadian trade was mostly responsible for this as these products had, at times, represented up to three quarters of Canadian exports to the United Kingdom.

Short or long term changes in exports of particular products could have influenced considerably income in that industry, and through this the Canadian income as a whole. If such an industry was unable to sell its products abroad or if the returns from such sales were low, the earnings of the whole industry could be affected adversely. Lower earnings in that industry would affect the whole economy. Expanding exports would work in the opposite direction.

Another avenue of inquiry was to attempt to examine how changes in exports of a certain industry influenced investment in that same industry. Only part of such investment is considered important. In Part I of this paper it was found that changes in one subcomponent of investment, i.e., inventories, could be linked with other factors rather than with changes in exports. Farm inventories and grain in commercial channels were influenced by the size of the crop harvested. Involuntary changes in inventories could occur at turning points of general business activity. Also changes in the





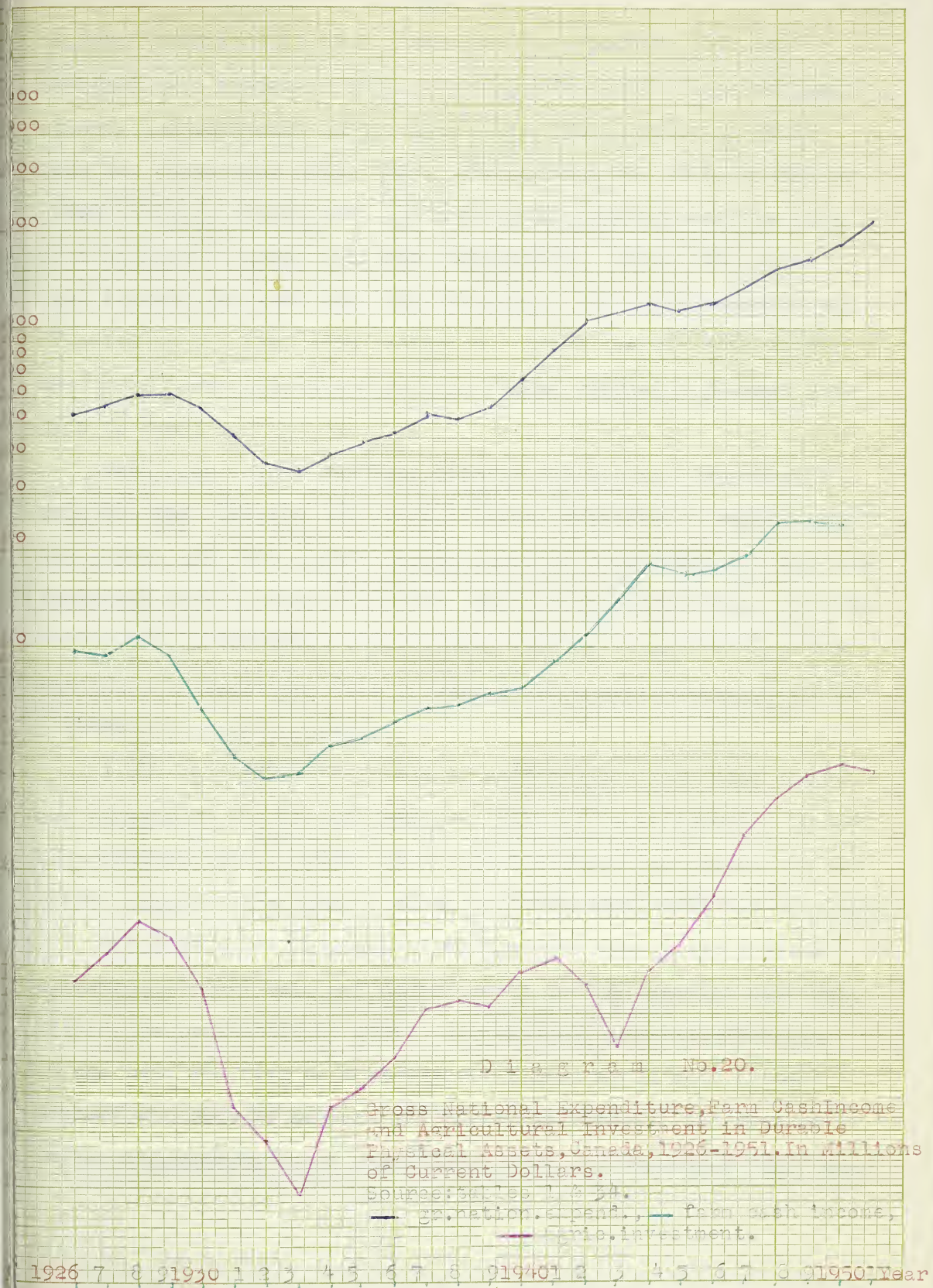
rate of increase or decrease in sales represented by the rate of change in gross national expenditure could influence inventories. All three factors combined do not leave much room for influences through changes in exports. Therefore, the new investment under study here includes only new investment in physical durable assets, i.e., new nonresidential construction and machinery and equipment.

The groups studied here, however, were far too broad to give a good insight into what was going on in export industries, how they reacted to changes in prices of exports, their values and volumes, etc. One could, therefore, inquire if there were any goods that could be considered as representatives of all groups of exports studied so far. Such goods might be considered representative because they made up a major part of the group or because other goods changed as did the commodity considered representative and so it was an indicator of a whole set of commodities that together made up a major part of the whole group.

For the agricultural and vegetable products, wheat was the most representative good. Whatever happened to wheat should have been reflected in the totals for the whole group. There was a possibility, however, that some important changes, due to substitution between grains, occurred without affecting the total. Therefore, oats and barley were added to the representative commodity of this group, though they were of lesser importance than wheat.

What happened to farm cash incomes during the period studied here? Diagram No. 20 gives us changes in gross national expenditure, in farm cash income, and in new investment in physical durable assets in agriculture. We can see that farm cash incomes









declined from 1926 to 1927, increased to a peak in 1928 and declined to a trough in 1932. In comparison with gross national expenditure farm cash income led by one year, declining after 1928 and increasing after 1932. The decline was steeper than in gross national expenditure and subsequent recovery more in line with changes in gross national expenditure. After 1932 farm cash income increased into the war period and was apparently not affected by the 1937-1938 recession. After the war both series once more increased, but farm cash income reached a plateau from 1948 to 1950.

Farm cash income was more closely correlated with exports than was the case for the gross national expenditure series. Both the export and farm income series declined from a peak in 1928 and increased from a trough in 1932. This is understandable. In 1928 nearly half of Canadian exports were made up of agricultural and vegetable products and even postwar exports still contained about a quarter of these products.

A similar relationship can be seen between farm cash income and exports to the United Kingdom. This is to be expected in the late twenties since nearly 75 per cent of Canadian exports to the United Kingdom were made up of agricultural and vegetable products.

The lead which farm cash income showed over gross national expenditure could have had an influence on the Canadian national income; in particular it could have brought Canadian expansion in the late twenties to a stop earlier than would have occurred without it. Let us compare the following figures: the rate of change in gross national expenditure from the preceding year, the





rate of change in farm cash income from the preceding year, and the balance of both figures which gives us the rate of change in the remaining sectors of the Canadian economy.

TABLE  
Changes in Gross National Expenditure and Farm Cash Income, Canada, Selected Years, 1926-1929, in Millions of Current Dollars. 1/.

Change in:	<u>1926</u>	<u>1927</u>	<u>1928</u>	<u>1929</u>
Gross nat. expend.	N.c.	+353	+458	+ 61
Farm cash income	N.c.	+ 22	+132	-137
Gross nat. expend. other than farm cash income	N.c.	+331	+326	+198

As we see the rate of change in the remaining sectors of the economy was declining after 1927 and the steep decline in 1929 could have been a result of a sharp decline in the figure for farm cash income in that year. Even in 1929 this decline in farm cash income could have affected other sectors of the Canadian economy through a multiplier action.

Whatever were the reasons for the decline in national income in the other sectors of the Canadian economy in 1929, one can venture an opinion that declining farm cash income in 1929 must have certainly aggravated the previous signs of weakness in the Canadian expansion of the late twenties.

Farm investment in durable physical assets appeared to be correlated to a certain degree with gross national expenditure and to a certain degree with farm cash income, usually lagging behind the latter in turning points except for the year 1928.

1/ Original data: post tables 1 & 34.



Farm investment increased from 1926 to 1928, then declined to 1933 and increased to 1938. A small trough in 1939 followed. After the war farm investment reached the highest level in 1950, lagging once more one year behind the highest level in farm cash income.

These lags in 1933, 1938, 1939, and 1950 suggested that a causal relation might have existed between farm cash income as a cause and investment in durable physical assets in agriculture as an effect. A similar relation was found formerly between exports of agricultural and vegetable products and farm cash income. And so a long chain of causes and effects links Canadian exports with Canadian income and investment. This is a strong support for the theory of foreign trade or exports multiplier. According to this theory domestic investment and exports, or rather balance of trade, instead of exports, are considered determinants of the size of the national income. The multiplier is determined by the propensities to consume and to import in Canada and in the countries trading with Canada. (These propensities usually are considered to be constants).

Because of the similarity of treatment between investment and balance of trade as determinants of national income, they are often added and the new statistic called gross total investment is obtained. Although gross domestic investment in Canada reached its highest level in 1929, the gross total investment reached such a level in 1928. If we assume that gross total investment is a determinant of gross national expenditure with a lag the end of expansion of Canadian income was to be expected.





A comparison of exports with net value of agricultural production can be made. This net value of agricultural production differed slightly from farm cash income but could be compared with other lines of production in Canada. During the late twenties agricultural production represented 33.9 per cent of total production, but exports of agricultural and vegetable products alone (animals and their products omitted) constituted nearly half of the exports.

During the thirties the importance of agriculture in the Canadian economy declined. The net value of agricultural production (animals and their products included) represented only 23.6 per cent of total production. In exports agricultural and vegetable products also declined in importance and their share was only 34.5 per cent of total export of goods.

Postwar figures revealed the same declining trend in Canadian agriculture and its exports: In the 1946-1949 period, agricultural production represented 21.9 per cent of the total, while agricultural and vegetable products constituted only 24.4 per cent of total exports. An examination of the production of the grains, wheat, oats, and barley will be made to attempt to explain more fully this decline in agricultural and vegetable exports.

Values of production of these three grains were correlated to a certain degree with exports of the whole group. The value of wheat produced increased slightly from 1926 to 1927 and then declined to 1931. Changes in the value of oats produced were similar except for the lowest level being reached in 1932. The



value of barley produced was greatest in 1928 and least in 1931. Exports of agricultural and vegetable products declined from 1926 to 1928, increased slightly in 1929 and then declined steeply to 1933 though the rate of decline after 1932 was rather small. If the disturbance of increased values of exports of agricultural and vegetable products in 1929 is omitted then the decline in the value of exports led the decline in production values in the late twenties.

Diagram No. 21 gives the values produced, physical production and area sown for wheat. Similar data with respect to oats are given in Diagram No. 22, and for barley in Diagram No. 23. Yields of all three grains in bushels per acre are given in Diagram No. 24.

All production series exhibited considerable fluctuations which, to a large degree, were apparently due to weather conditions. One cannot deny that the amounts of labour and capital may have changed in agriculture over the period, and this may have influenced the yield per acre. But this effect is likely to have been a long term one, and for shorter periods, production would depend rather on the size of the area under cultivation and weather conditions alone.

Diagram No. 24 revealed that, on an average per acre, yields were higher before 1929 than in the later years. From 1926 to 1928, inclusive, weather conditions were favorable and no really bad harvests occurred. Beginning in 1929 the situation changed and poor crop years alternated with good or rather with medium ones.

In terms of aggregate yields, wheat production was the highest in 1928, and the trend after 1928 appears to be downwards.







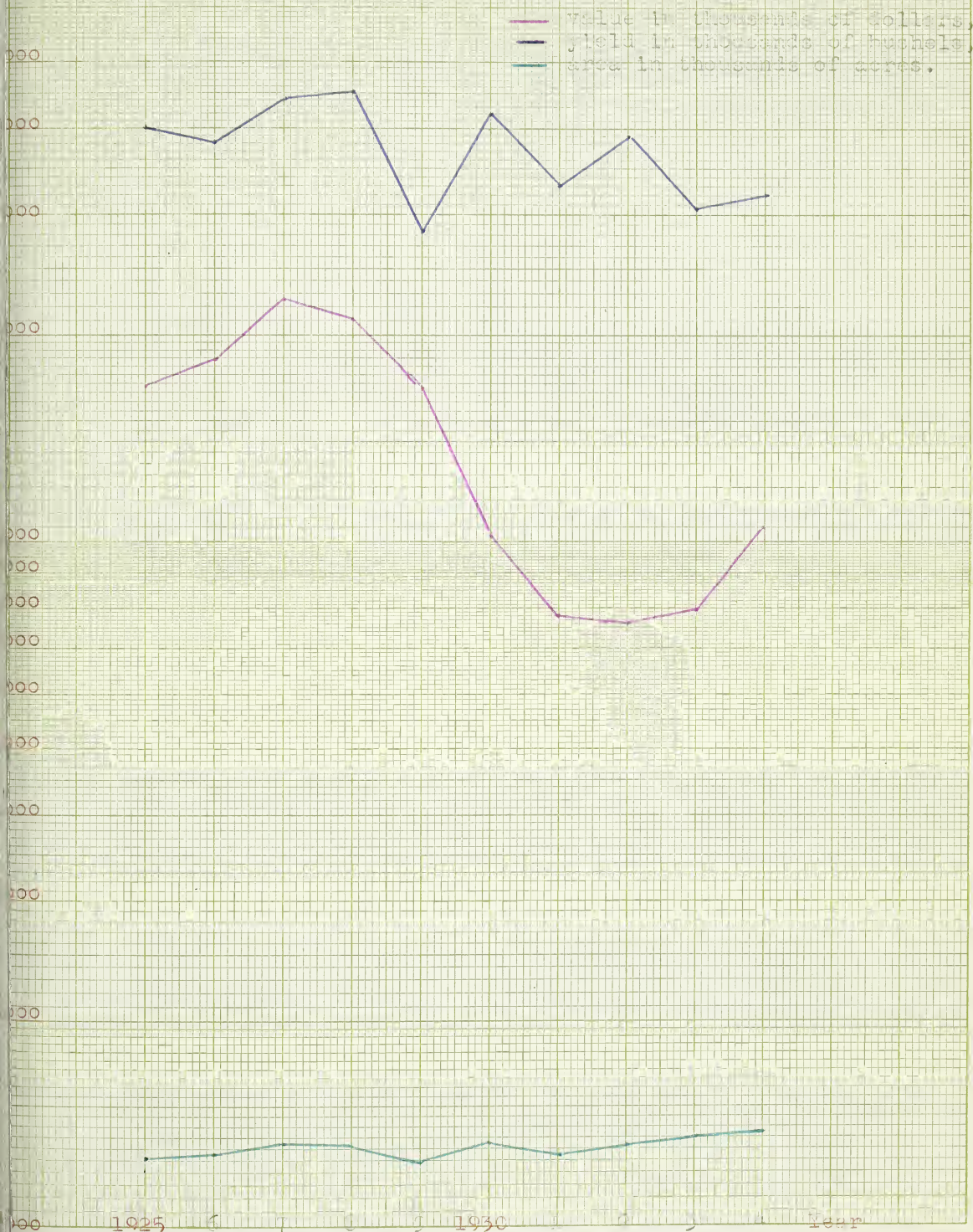




Value in thousands of dollars.  
Yield in thousands of bushels.  
Area in thousands of acres.

Diagram No.22.

Oats Production, Canada, 1925-1934.  
Source: 1935.





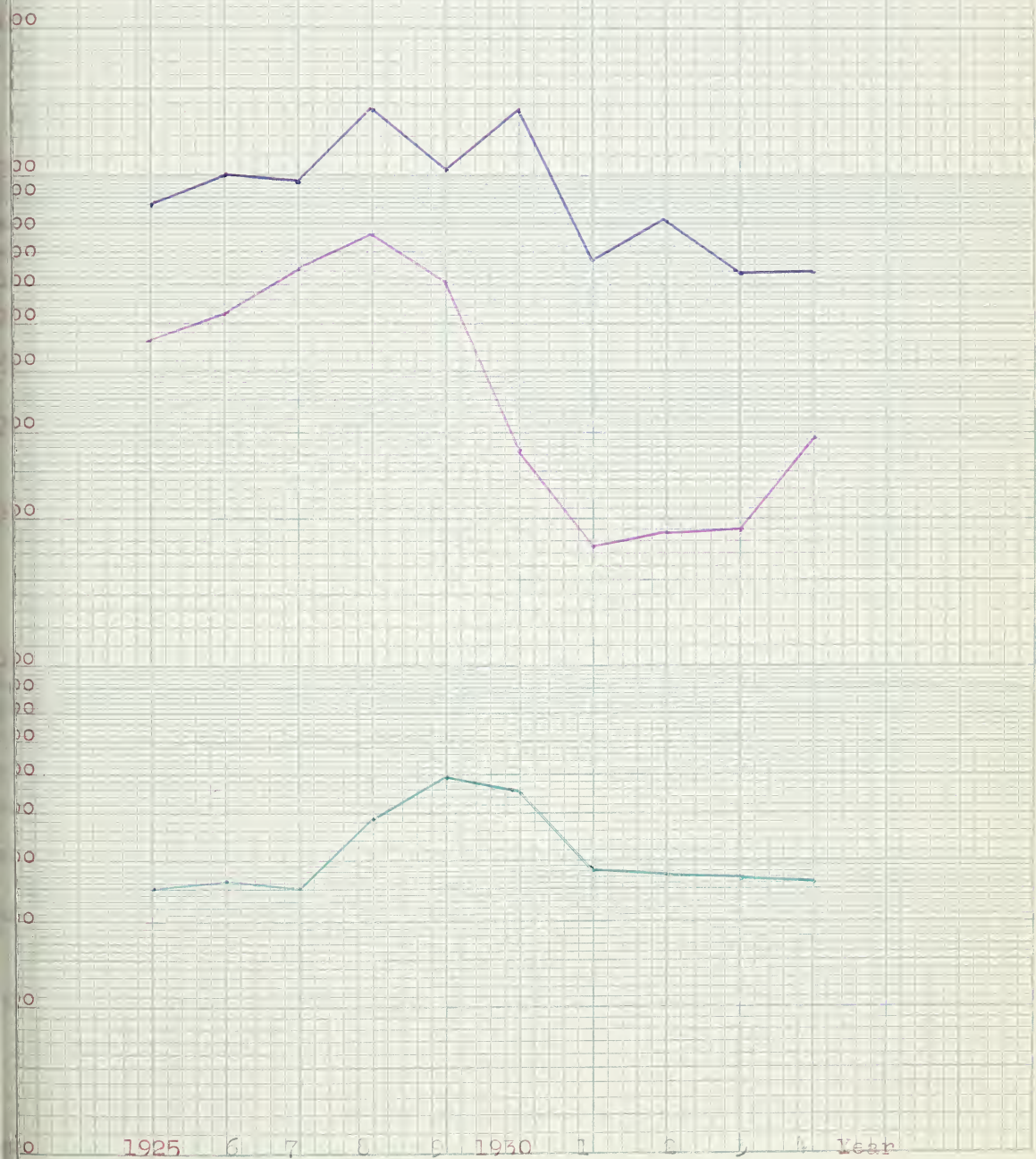


e in thousands of dollars.  
 ld in thousands of bushels.  
 a in thousands of acres.

Diagram No.23.

Barley Production, Canada, 1925-1934.  
 Source: Table 33.

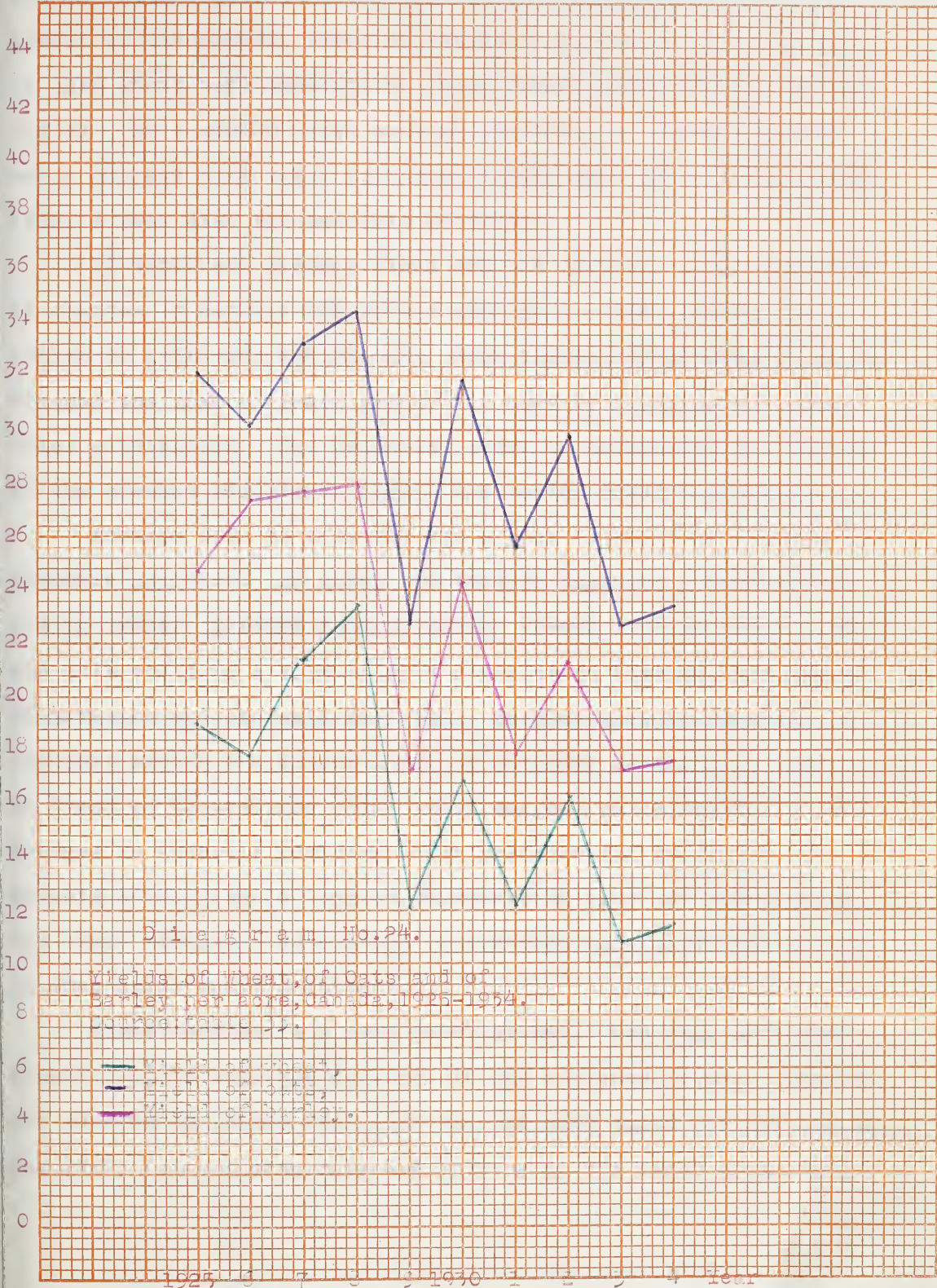
— value in thousands of dollars,  
 — yield in thousands of bushels,  
 — area in thousands of acres.







Bushels per acre.





Nothing in our data suggests that these production figures responded to the general level of business activity. The same could be said about oats production. Only barley production seemed to differ. If a smooth curve were to be fitted to our diagram it would suggest that total yields of barley were the highest around 1929, a peak also for economic activity.

If total and average yield did not respond in the short run to changes in capital and labour applied to land, and men were unable to influence the climate, then farmers could attempt to influence the size of their production only by changing the area under cultivation. Our data also serve to illustrate the extent of the acreage adjustment during the period under investigation.

Acreage sown to oats did not appear to react to changes in economic activity. At most, the diagram suggests a very slowly rising trend. Acreage sown to barley showed a bulge around 1929 and this could be a sign of some correlation between area under cultivation and economic activity. Nothing similar however occurred around the lowest level of economic activity in 1933: no trend is discernable which would suggest an adjustment to the changes in economic activity which preceded and followed. The weights to be given to curves representing oats and barley were not high. Together both areas represented only about two-thirds of area under wheat cultivation.

Wheat changed in a most peculiar way. Its area increased steadily up to 1932 and declined in the following years. Despite the decline in prices from 1926 and the more rapid decline following 1929, farmers seemingly did nothing to cut their production





or even to substitute one grain enterprise for another. Instead, the increased area indicates that they tried to expand their production even further.

This increased production might have resulted in even lower incomes had not a series of poor crops, due to weather conditions, intervened. When by the end of the thirties, good yields returned, the situation changed and huge surpluses resulted.

The writer has frequently been told by farmers that farming is not a business but a way of life. This was their explanation for not cutting production despite declining prices and incomes in the late twenties and early thirties. Instead, farmers continued to produce as much as possible regardless of earnings. The economic stimulus of low prices and low returns had very little influence on production decisions.

Wilfred Malenbaum 1/ had the following to say about this same matter speaking of agriculture the world over:

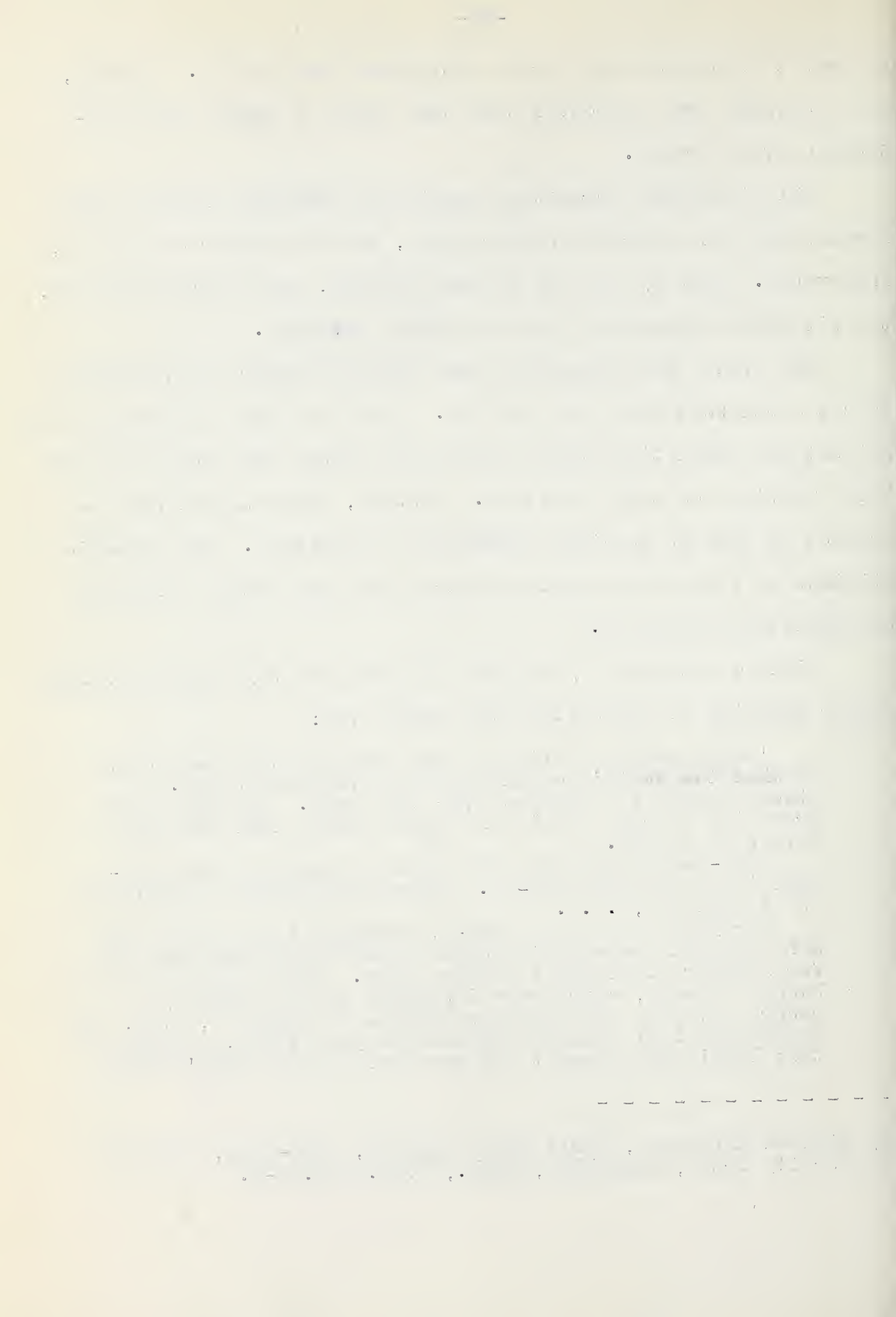
'World wheat supplies in the thirties were in excess of what the world's consumers were prepared to use. Stocks tended to increase over the years. This followed from high average levels of output rather than from low levels of demand.

Year-end stocks were 695 million bushels on the average in the period 1924-29. These carryovers are measured as of August 1, . . .

Carryover levels in 1924-29 averaged less than 25 per cent of what the world's people consumed as food and used for further plantings in those years. From the 695 million bushel average, carryovers increased almost steadily to a record level of 1180 million bushels on August 1, 1933, and to further 1187 million bushels one year later. Stocks of this level were close to 40 per cent of the world's human

1/ Wilfred Malenbaum, World Wheat Economy, 1885-1939, (Harvard University Press, Cambridge, Mass., 1953.) pp. 5-7.





consumption and seed use. Drought conditions cut these stocks rapidly, and carryovers were lower in 1937 and 1938. By August 1, 1939, however, stocks again accumulated to the record levels of 1933 and 1934.

There were years of depression, of poverty and hunger during the thirties. It is true that human consumption of wheat per capita was lower in 1929-34 than in 1924-29. The reduction, however, was due to factors other than the depressed economic conditions of the early thirties. On the contrary, these conditions probably encouraged human wheat consumption and thus contributed to a per capita level which was above what might otherwise have been expected in those years. Moreover, wheat utilized for all purposes was actually higher, both in total and on per capita basis, in the five years 1929-34. The large carry-over ratios can thus not be attributed to any special circumstances which depressed the demand for wheat.

. . .  
There was evidence of overproduction in the early thirties. Similarly, there did not seem to be a demand for the excess supplies of later years. Despite very low prices, despite recent drought experience, despite the unfilled needs of hungry people, and despite record levels of wheat utilization in some of these years, production provided large carryover supplies. Wheat surpluses were caused by output in excess of what the world economy could absorb . . . . '

Mr. Malenbaum also gave reasons for the alleged condition of oversupply. The supply curve of wheat usually responded to higher prices by moving upwards. There were always enough people ready to go into farming or to increase farm production, (i.e. to increase the area under cultivation) whenever the reward for such action was good, and even if the prospects were short term only. Large farm families supplied most of the recruits for such expansion. Lack of town skills acted as a barrier to farm folk moving to towns. There was also a return to the land movement whenever the conditions on land looked more promising than in towns. It was the independent living that attracted people.

But Malenbaum observed also:

' . . . For downward movement the response would be less elastic. For that reason alone, production in certain



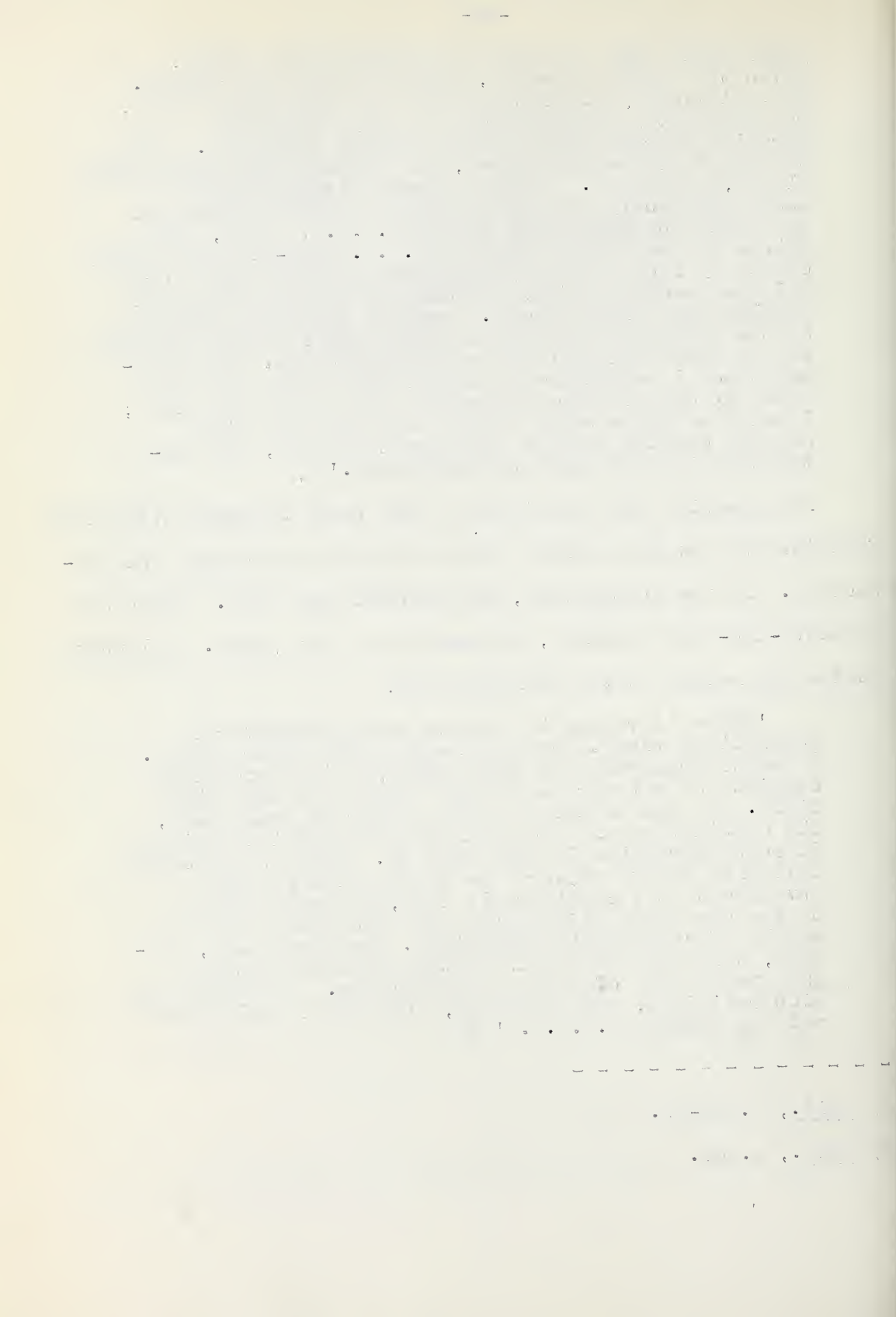
years would tend to exceed the amount which would, given the demand schedule, yield desired net returns. This difficulty of contraction is of great importance, for frequently circumstances of only temporary duration operate to encourage acreage expansion. When the brief period has passed, the acreage may decline only slowly, if at all. Such temporary circumstances occur frequently in a wheat economy spread throughout the world and among many nations . . . . Thus, high prices in the United States in . . . 1924-26 were largely caused by such temporary phenomena as very severe crop failures occurring simultaneously in several important surplus and deficit areas. Acreage expansion inspired by the prices and returns of these years is then subject to the more inelastic contraction function. This circumstance is considerably aggravated by the rise in price of cost factors consequent upon such peak years; insofar as these costs become the basis for fixed charges carried through subsequent periods, the contraction is made much more difficult.' 1/

In expansion the immobility of the rural community (big farm families as a supply of farm labour) helped to increase the production. In the contraction, the opposite was true. There was no leave-the-land movement, at least for a few years. Malenbaum stated the matter in the following way:

'There is reason to believe that agricultural populations tend to be less mobile than other groups. A larger proportion of those employed in agriculture consists of entrepreneurs than is true in any other field. If man is not a mobile factor of production, the combination of labor plus its accumulated savings in some enterprise is even less so. This is especially true when shifts require the liquidation of this investment at a considerable loss, as would usually be the case when adjustments are being made as a result of unfavorable conditions. In large part, however, this lack of mobility stems from the entire pattern and way of life in agriculture. It arises from wide religious, philosophical, and social motives as well as economic . . . . ' 2/

1/ Ibid., p. 28-29.

2/ Ibid., p. 46.





So we are back to farming as a way of life. This part of the argument runs as follows: during a prolonged period of high returns to the wheat enterprise (good yields and high prices), it becomes more and more probable that total world production will exceed total world effective demand. This is what happened following 1926. Such an excess of supply persists for a long time because the farm population does not restrict production in response to adverse economic stimuli. On the one hand farm population is comparatively immobile, and on the other, farmers do not adjust cultivated acreage in line with the rewards received in the particular enterprise involved.

So far we have dealt with yields and values of grain production. Price changes would also be reflected in the data implicitly. However, it may help in analysing changes in values of grain production if prices are introduced as separate data. Diagram No. 25 provides the relevant price series.

There was visible a certain degree of correlation between wheat prices and the price index of exports of agricultural and vegetable products. Both series declined from 1926 to 1928; in 1929 the price index of exports of this group increased a little and wheat prices increased substantially. Later a sharp decline occurred in both price series which reached a very low point in 1932. Recovery in 1933 was weak but later progressed more rapidly.

Prices of oats and barley differed significantly from the price index of this group of exports in the late twenties. The price of oats increased moderately from 1926 to 1927, declined



Dollars per bushel

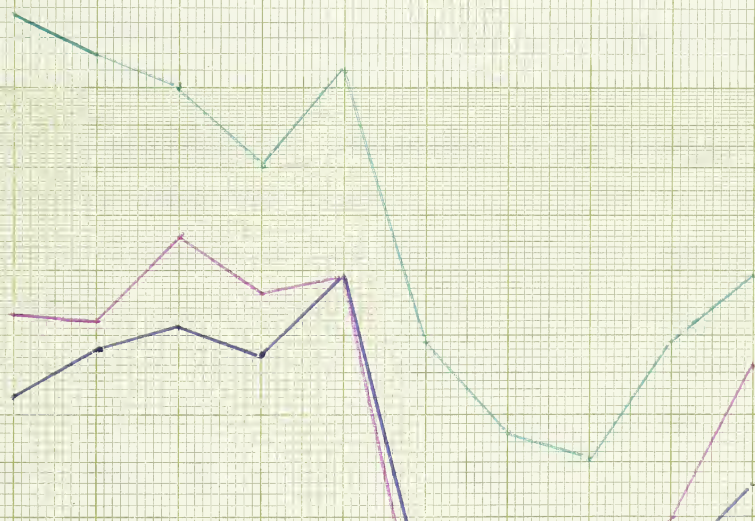


Diagram No. 25.

Average Prices of Wheat, Oats  
and Barley, Canada, 1925-1934.  
In Dollars per Bushel.

Source: Table 33.

- Average price of wheat,
- Average price of oats,
- Average price of barley.

1925 6 7 8 9 1930 1 2 3 4 Year





in 1928, increased once more in 1929 and later declined steeply. The price of barley increased from 1926 to 1927, declined in 1928, increased in 1929 and then fell sharply.

Early in the thirties all prices were correlated with the price index of exports of the whole group of agricultural and vegetable products. Prices of oats and barley increased from a low point in 1931 to 1932 but the increase was very slight. A more important difference occurred when the intensity of decline was compared. Prices of oats and barley did not decline so steeply as did wheat prices.

Summarizing the results one could say that the prevalence of agricultural and vegetable products in Canadian exports was a source of weakness due to a tendency to overproduction and an inability of grain producers to adjust production to falling prices and incomes. This was partially remedied by the decreased importance of agricultural production in the Canadian economy and in Canadian exports. Whether this decline in importance is yet sufficiently large to immunize Canada from setbacks similar to that suffered in the late twenties and thirties is difficult to predict, but if repeated, their influence would be limited to a smaller sector of the Canadian economy and so one can hope that their impact will prove less grave.



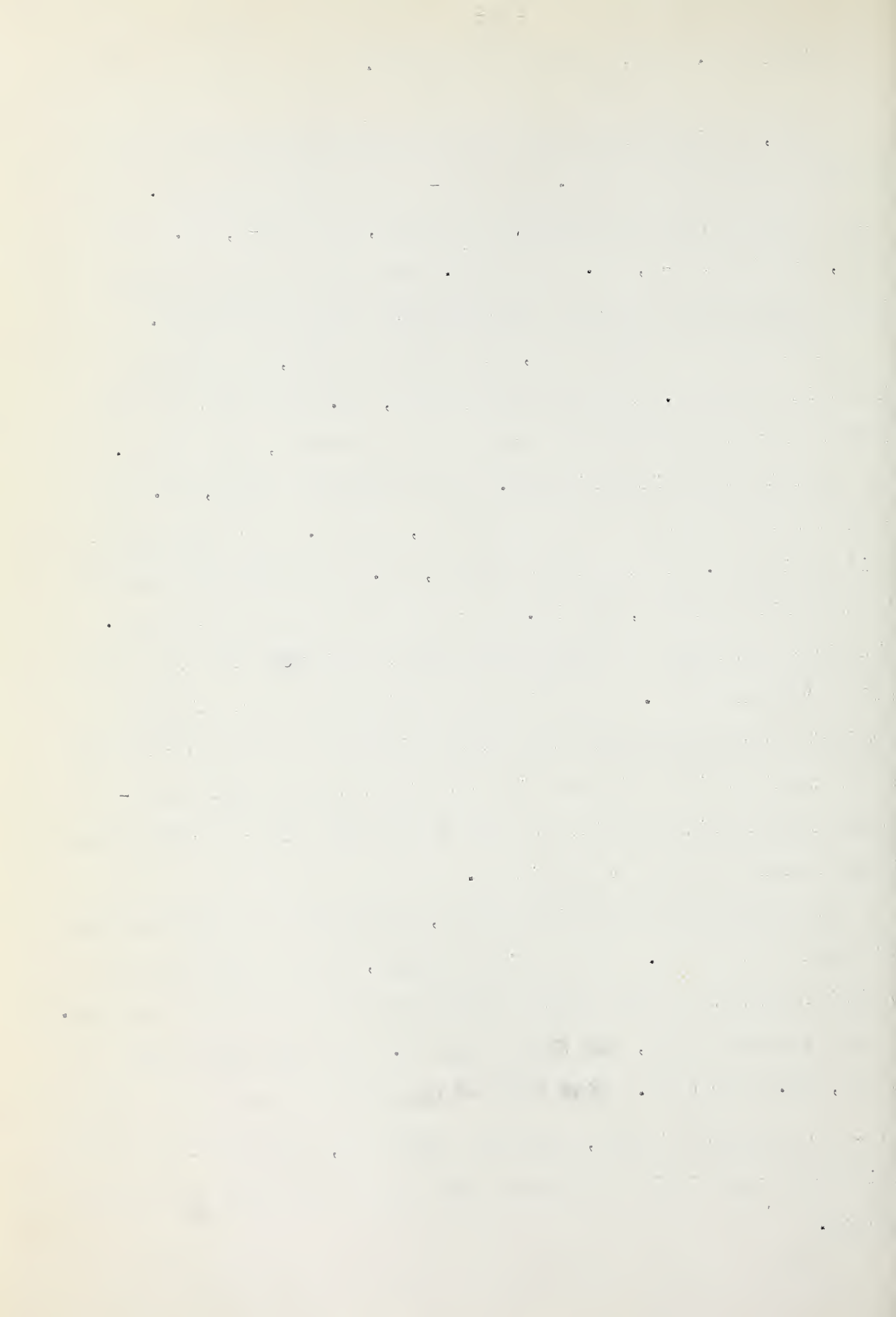


Chapter X. WOOD, WOODPULP AND PAPER.

Wood, woodpulp and paper were second in importance amongst exports of Canadian goods. In 1926-9 they represented 22.4 per cent of total values of exports of goods, in 1930-7, 24.9 per cent, and in 1946-9, 29.8 per cent. One could say that their importance amongst Canadian exports was increasing slowly.

This group of goods was, for the most part, exported to the United States. In the first period, 83.9 per cent of total values exported was shipped to the United States, and only 6.2 per cent to the United Kingdom. In the second period, 72.3 per cent was shipped to the United States, and 11.5 per cent to the United Kingdom. In the third period, 75.2 per cent was exported to the United States, and 12.3 per cent to the United Kingdom. The share destined for the United States declined over time but still remained high. Meanwhile proportionately more of these products were exported to the United Kingdom but the increase in sales to the United Kingdom did not offset the decline in exports to the United States so that apparently other markets were being found for these commodities.

As exports to the United States, this group of products was of great importance. In the first period, half of the value of Canadian exports to the United States consisted of these products. In the second period, the figure was 48.0 per cent and in the third, 52.5 per cent. With half of Canadian exports to the United States comprised of wood, woodpulp and paper, the export series for this group was highly correlated with total exports to the United States.



Amongst exports to the United Kingdom, their importance was increasing. In the first period these products represented only 4.1 per cent of total exports to the United Kingdom; in the second period the figure was 8.1 per cent; and in the third period 19.7 per cent.

Values of exports of wood, woodpulp and paper were correlated with values of primary wood production in Canada. Exports of wood, woodpulp and paper increased in value from 1926 to the fiscal year 1930, declined to the fiscal year 1933 and increased to the fiscal year 1938. Values of primary wood production increased to 1929, declined to 1932 and increased to 1937. As the years were not comparable, some being fiscal and some calendar, it was impossible to establish any leads or lags between these two series.

One could have used net values of forestry production 1/ instead of values of primary wood production. Net values of forestry production appeared to parallel the values of primary wood production. The last series, however, was preferred as the first showed a shift from 1938 on due to a different method of computation after that year.

Values of primary wood operations consisted of values of raw materials and halfproducts but exports of wood, woodpulp and paper contained also paper, a final product which could not be called 'primary'. Despite such inclusion or exclusion both series appeared to be correlated.

Values of primary wood production and gross national ex-

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1/ Cf. post table 41





penditure reached their high points in 1929 and 1937 and a low point in 1938. But primary wood production led by one year in recovery after the decline in the early thirties. Diagram No. 26 revealed also that values of primary wood production fluctuated more widely. Observation of postwar years confirmed this tendency. Let us examine the changes in the 1948-9 period. This was a period of recession in the United States and, although the Canadian gross national expenditure did not decline, a lower rate of increase was visible. Values of primary wood production were apparently seriously affected and increased very slightly.

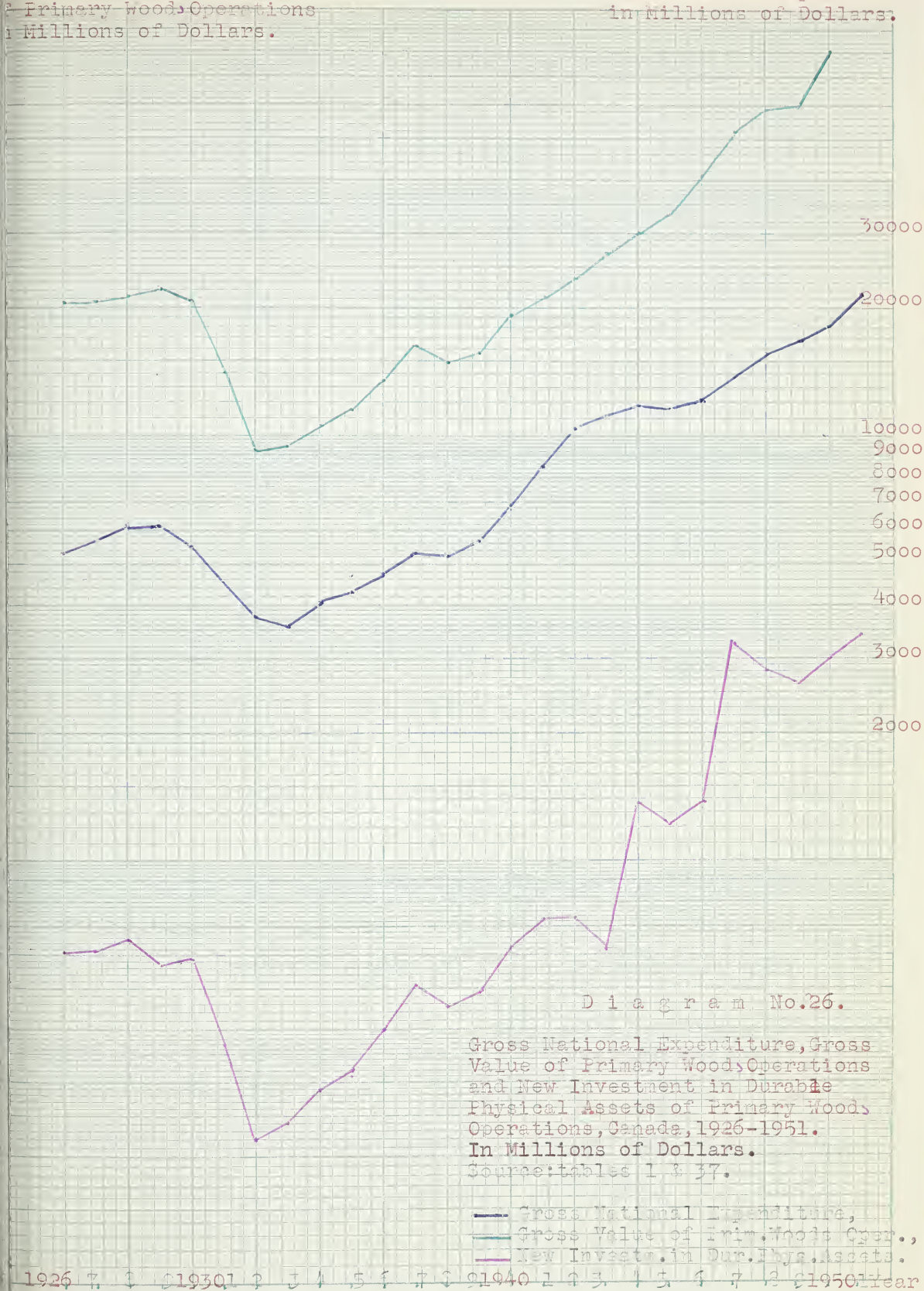
This greater volatility of values of the output of primary wood operations was understandable. Wood products were exported to a large extent to the United States and so were very dependent on the state of American business activity. From our studies of Canadian and American gross national expenditure, it was found that Canadian business fluctuations were characteristically not so extreme as were those observed in the United States.

Diagram No. 26 charts changes in new investment in physical durable assets in primary wood operations. This investment appeared to be correlated with values of primary wood production except for some small disturbances such as the small decline in investment in 1929. This could be explained by the steep decline in prices of newsprint in the United States in 1928. Expectations of continued price declines could have been responsible for a reduction in Canadian investment in the forestry industry.



Gross Value and Investment  
in Primary Wood Operations  
in Millions of Dollars.

Gross National Expenditure  
in Millions of Dollars.







A closer examination of exports, production and investment did not reveal any visible lags and leads. If there were any they must have been rather short and, therefore, hidden in our yearly data. One might have expected this on the grounds that Canadian wood operators often were only branches of American firms. Frequently United States interests were represented directly on the Boards of Canadian companies. Even fully independent Canadian companies often relied on American financial help or were exporters to the United States. Canadian wood operators had to observe the American market closely in order to adjust their activities to prospective sales in the American market. Any substantial lag in adjustments would have been disastrous for them.

For a more detailed study of changes along these lines, three goods were chosen as representative of our series: pulpwood, woodpulp and newsprint. These goods were also related closely, the latter being a product of the others.

Data with regard to quantitative changes in the volumes of production of these goods and the whole group of exports did not present any consistent pattern. The index of physical volumes exported is given in Diagram No. 15. According to this diagram, the volume of exports increased to 1930 and declined to 1933; after an increase in 1934 a period of stagnation in exports occurred with a new increase beginning in 1936. Despite this rising trend total volume of exports in 1937 and 1938 did not recover the position it had attained in 1929 or 1930. Quantities





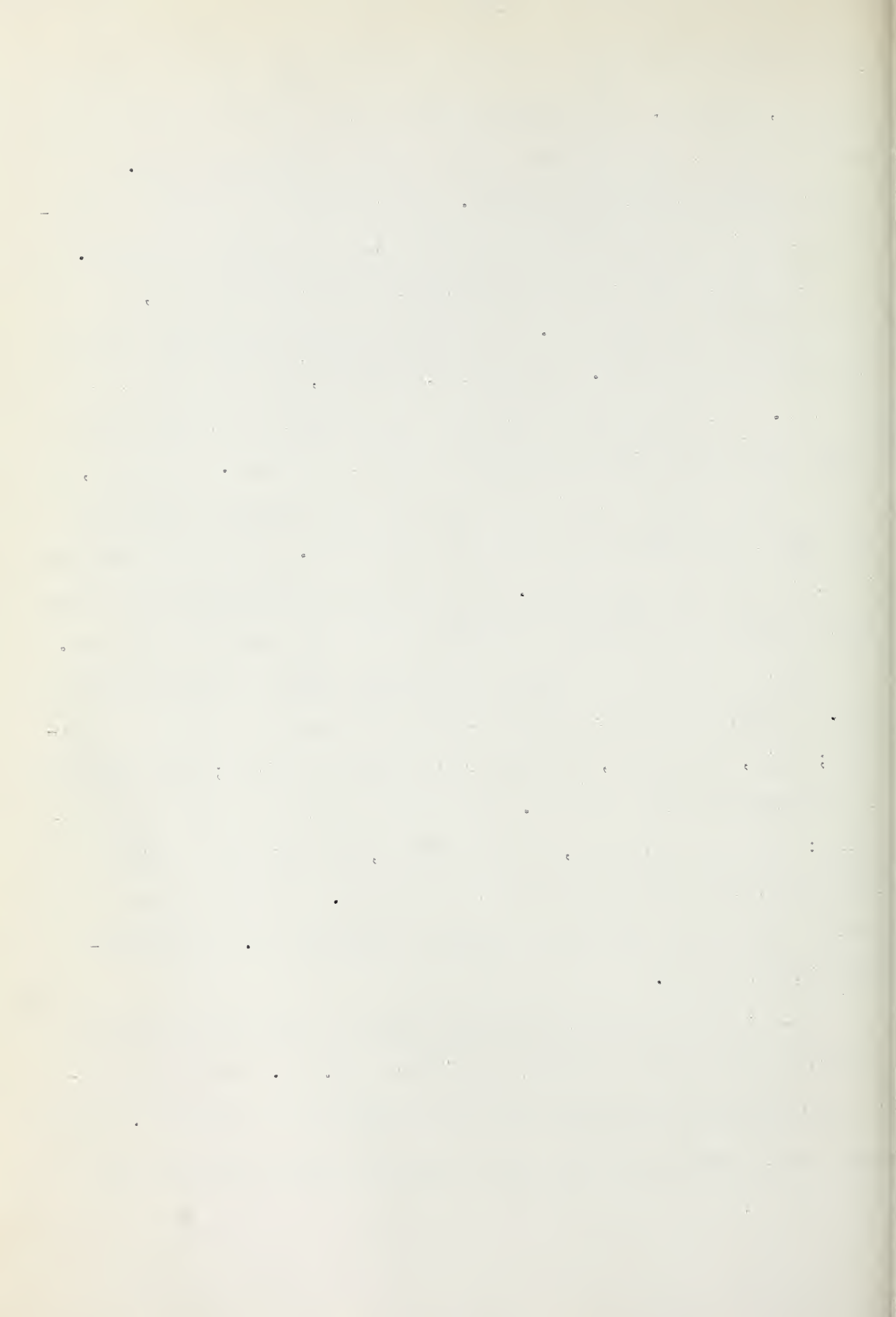
of representative goods produced in Canada suggested a different picture, however. Our representative goods reached their highest levels in 1929 and 1937 and lowest point in 1932 and 1933.

Their general trend was upwards. This would suggest that increasing amounts of these goods must have been retained in Canada.

Values of our representative wood products produced, as illustrated in Diagram No. 28, did not parallel each other as did the changes in volume. There were, however, a few exceptions up to 1938. Woodpulp values declined from 1926 to 1927 when the other two commodities increased in values produced. Moreover, there was no clearly defined trough for the woodpulp series at the end of the decline in the early thirties. Values of woodpulp in 1932 and 1933 were equal. With these two exceptions all three series could be considered parallel before the second world war.

This relation was changed during and after the second world war. Values no longer changed in the same degree as did the volumes; this, of course, was due to changes in prices; and these are to be examined more closely. Our data consisted of two price indexes: that for woodpulp, for newsprint, as well as a series for the average value per cord of pulpwood. To make these series comparable they were plotted in Diagram No. 29 on semi-logarithmic graph.

Let us first examine the price index of the whole group of exports reproduced previously in Diagram No. 19. This price index was closely correlated with price changes in newsprint. There was a small decline in the price index of exports from 1926 to

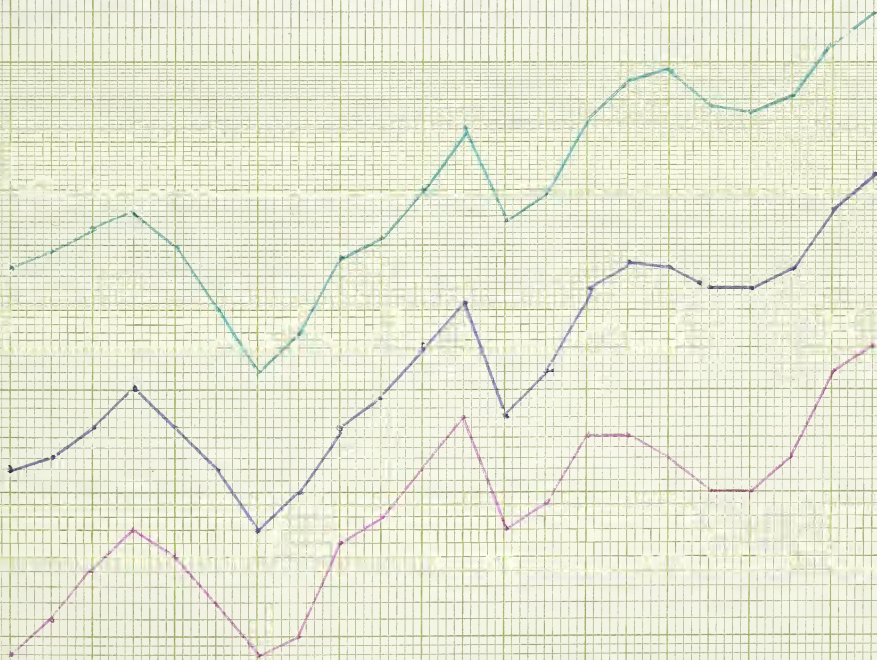


odpulp and Newsprint in Millions of Tons,  
 Ipwood in Millions of Coris.

D i a g r a m No.27.

Quantities of Production of Pulpwood,  
 Woodpulp and Newsprint, Canada, 1926-1947.  
 Woodpulp and Newsprint in Millions of  
 Tons, Pulpwood in Millions of Coris.  
 Source: tables 35 & 36.

— pulpwood in millions of coris,  
 — woodpulp in millions of tons,  
 — newsprint in millions of tons.



1926, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47. Year.





Billions of Dollars.



Diagram No.28.

Value of Production of Pulpwood,  
woodpulp and Newsprint, Canada,  
1926-1947. In Millions of Dollars.  
Source: tables 35 & 36.

— production of pulpwood,  
— production of woodpulp,  
— production of newsprint.

1926 7 8 1930 1 2 3 4 5 6 7 8 1940 1 2 3 4 5 6 7 Year





Price Indexes of Woodpulp  
and Newsprint/1926 equal 1/.

Average Value of Pulpwood  
in Dollars per Cord.

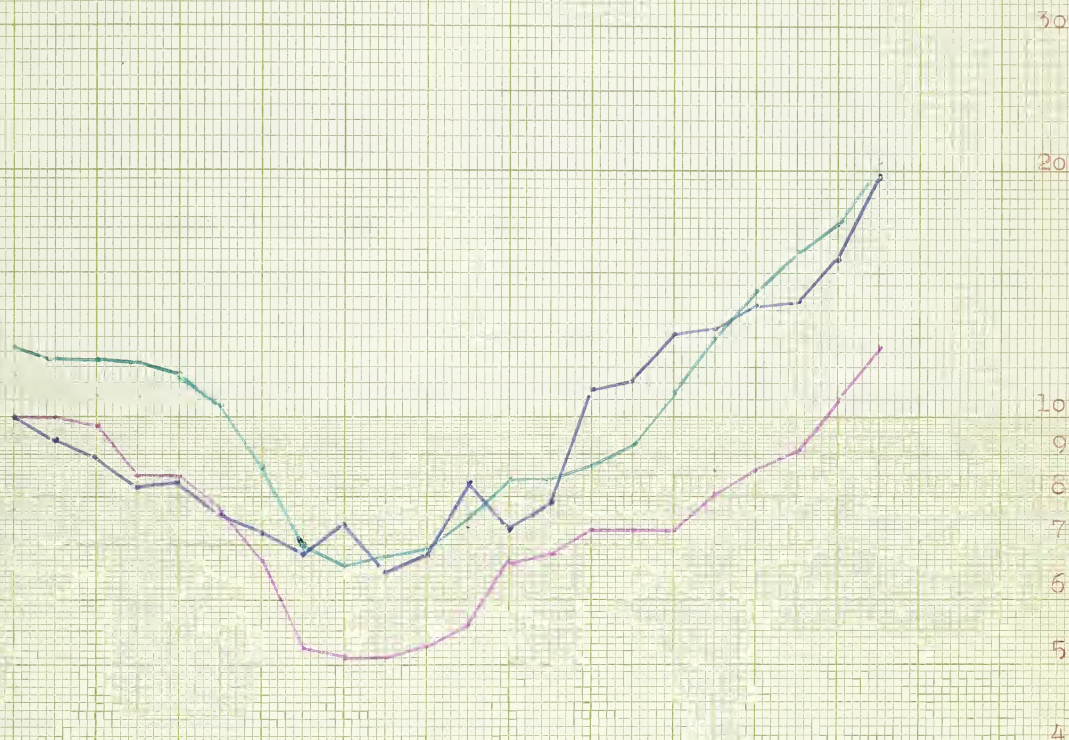


Diagram No. 29.

Price Indexes of Woodpulp and  
Newsprint and Average Value per  
Cord of Pulpwood, Canada, 1926-1947.  
Price indexes 1926 equal 1,  
Average Value of Pulpwood in  
Dollars per Cord.  
Source: Statistics Canada.

— Price Index of Woodpulp,  
— Price Index of Newsprint,  
— Average Value of Pulpwood.

1926 7 8 9 1930 1 2 3 4 5 6 7 8 9 1940 1 2 3 4 5 6 7 Year



1928 matched by a small decline in the price index of newsprint. From 1928 the decline became steep in both series and a low point was reached in 1933 in the price index of this group of exports and in 1934 and 1935 in the price index of newsprint. This late recovery in prices and lag between them suggested that internal prices were adjusting themselves to export prices and not vice versa.

A quotation from E. Marcus is relevant here 1/:

'Then in March 1933, the American recovery began . . . only newsprint exports lagged because American newspaper advertising, and thus newsprint consumption, lagged until the last quarter of the year.'

After this late start the recovery proceeded slowly. Price increases for the wood products group of exports were lowest when compared with the two remaining groups of Canadian exports. To a certain degree this reflected slower recovery in general business activity in the United States compared with that of other countries. When in 1938 most other prices dipped once more, the price index of this group of exports was so low that it did not follow suit. The price index of exports of wood, woodpulp and paper rose from 1937 to 1938 as did the price index of newsprint though the increase was rather slight. As we saw the correlation of export prices and prices of newsprint was quite good.

The average value per cord of pulpwood paralleled closely the price index of newsprint. These curves correspond to each other with a few exceptions. Pulpwood prices did not show any

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1/ Ibid., p. 579-580





dip after 1928 but rather following 1929. Also the increase in prices after the war appeared to be steeper.

The price index of ground woodpulp revealed more independence. It declined from 1926 to 1928, increased to 1930 and found its lowest level in 1935. Another high point occurred in 1937 and a low point in 1938. The price increases after the war were also steeper than those of newsprint.

The dip in prices of newsprint and exports of this group of goods following 1928 is worthy of additional comment. The decline led the gross national expenditure in its upturn by one year. According to E. Marcus 1/ the most important reason for it was an overcapacity of Canadian mills resulting from a shift in usage of these products in the United States markets. From 1926 to 1928, American consumers were shifting from ground to chemically prepared woodpulp. With respect to the first product, United States producers had no protection, and Canada supplied about 90 per cent of the demand. In the second instance, a United States tariff existed and Canada supplied only about 30 per cent of the demand. This shift in American demand caused overcapacity in Canada and when a price war broke out in 1928 between International Paper and Hearst, prices declined steeply. Following this decline shares of Canadian lumber companies dropped 40 per cent in value when other shares increased on an average about 30 per cent. Then in 1929 the general decline

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1/ Ibid., p. 573-4.



occurred.

This price decline in 1928 resembled the price declines that occurred in wheat well before 1929. Here and there over-production was blamed for price declines. The excess production of wheat was not remedied by cuts in the area sown and this aggravated the situation by depressing prices. Prices of newsprint and other woodproducts were sustained by cuts in production and, therefore, the decline in price was not so severe as was that in wheat prices. Prices remained at this low level for the next few years and this time the weakness of American recovery during the thirties was apparently the cause.

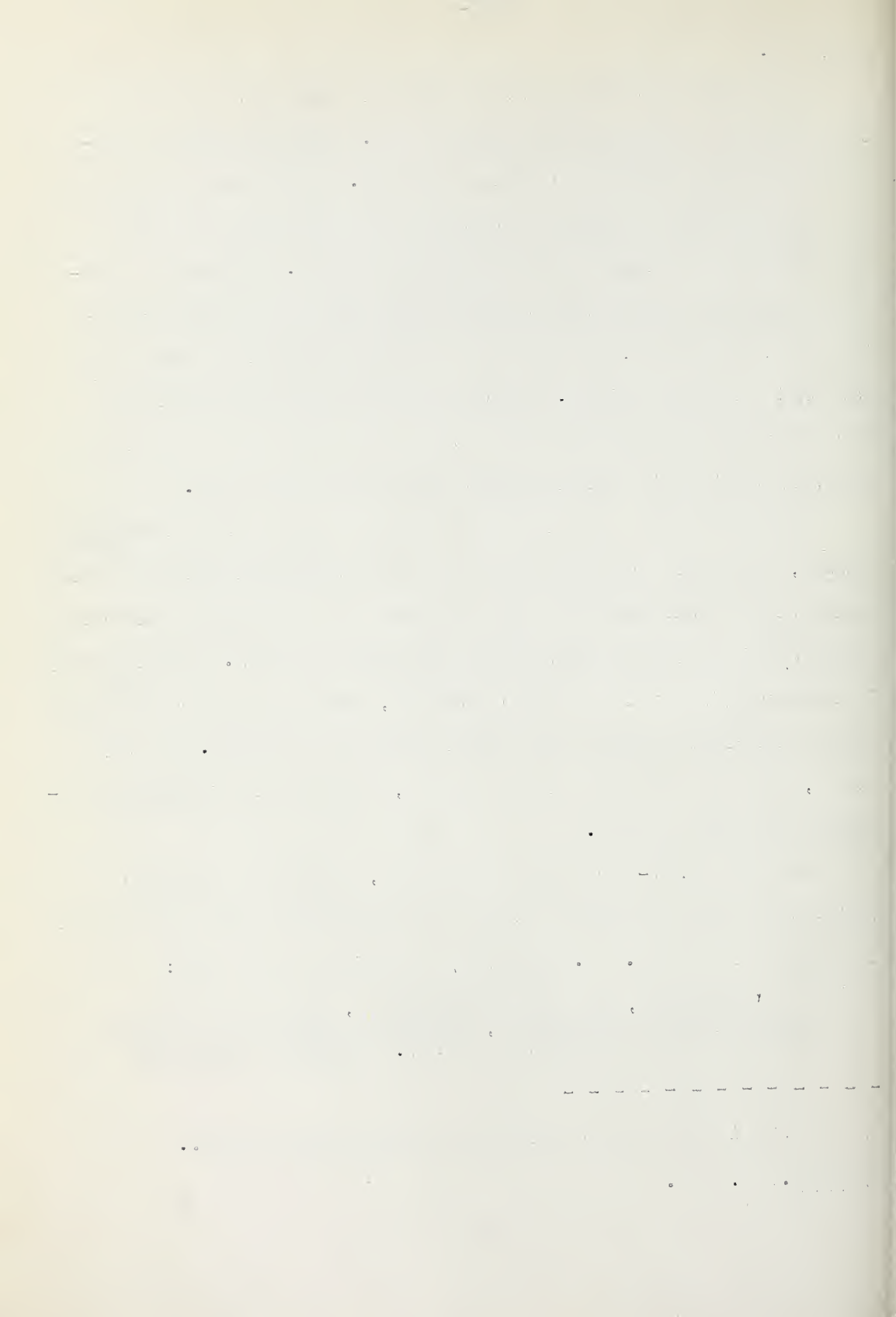
One could also expect that the longer good prices for wheat lasted, the more probable it became that excess supplies of wheat would be produced and once this happened the excessive production would continue and depress prices and farm incomes. Overcapacity in lumbering was not so predictable 1/, and depressed conditions of the thirties were not due to oversupply in Canada. In any event, although for different reasons, both lines of Canadian exports suffered greatly.

When the 1937-8 recession appeared, prices of woodpulp suffered a decline and this could also be linked with changes in the American market. E. Marcus 2/ is again quoted here:

'Meanwhile, in the United States, perhaps as an advance sign of recession, newspaper advertising ceased to gain at the beginning of 1937. American newsprint

1/ In 1928 it was due to shifts in the American demand.

2/ Ibid., p. 581.





production also stopped increasing. Hence by the early Spring of that year Canadian woodpulp exports to the United States were losing momentum, as had also occurred eight years before.'

The great dependence of exports of this group of goods on the American market renders this industry highly vulnerable during any recession or depression in the United States. On the other hand, during expansion the American market gives rise to a high level of demand, and with it production in Canada may be greatly stimulated. The American economy showed larger swings in the business fluctuations considered here than did the Canadian economy. Through larger swings in wood products utilization, the American economic volatility was spilling into Canada and increasing the Canadian swings as well. Wood, woodpulp and paper exports were one of the carriers of the more extreme American business wave into Canada.



## Chapter XI. NONFERROUS METALS

The third group considered was values of Canadian exports of nonferrous metals. These values represented 7 per cent of total exports in the period from 1926 to 1929, 16.6 per cent in the period from 1930 to 1937, and 12.1 per cent in the period from 1946 to 1947.

The decline in importance of these exports after the war to 12.1 per cent should be considered as temporary only. Mining production depends largely on the amount of previous investment, and we know that the flow of new investment in mining during the second world war was inadequate to maintain the level reached in the prewar period. In addition, a substantial length of time is required before new investment in mining results in increases in mineral production. Although the postwar rate of new investment in mining was large, the three year postwar period for which data are available is too short a period to reveal the exact amount of mineral production that would be forthcoming from the new level of investment. One can expect then that export statistics after 1949 would show substantial increases in production and exports of nonferrous metals over the values given for the period from 1946 to 1949.

In the first period from 1926 to 1929, about 49.3 per cent of total values of exports of nonferrous metals were directed to the United Kingdom. In the second period, from 1930 to 1937, 50.5 per cent of these exports were shipped to the United States and 28.2 per cent to the United Kingdom. In the postwar period



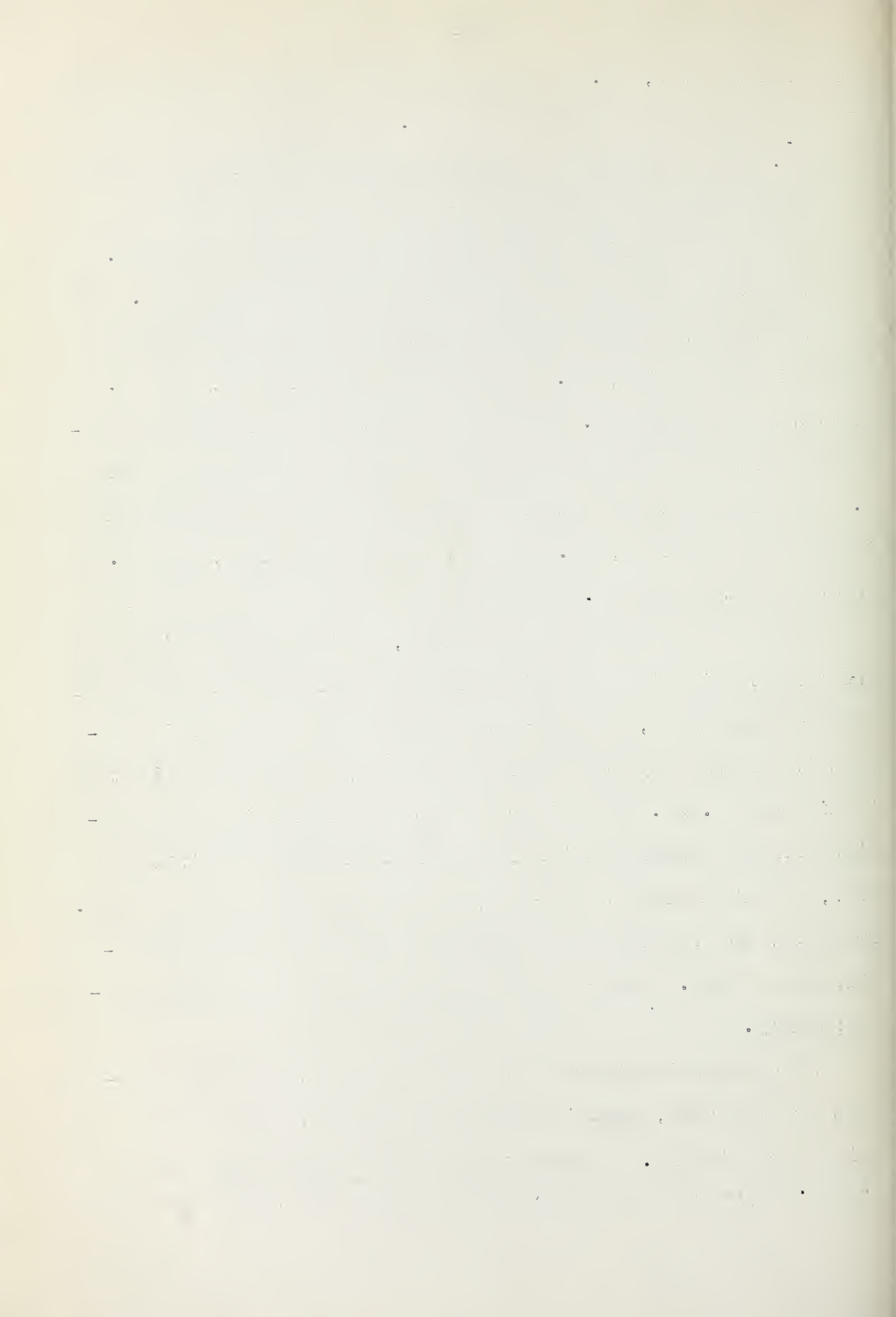
from 1946 to 1949, 40.2 per cent by value of these exports were directed to the United States and 33.4 per cent to the United Kingdom. These changes in percentages reveal that the share of the United Kingdom in these exports was increasing steadily while that of the United States was fluctuating up and down.

Values of exports of nonferrous metals represented 9.5 per cent of total values of Canadian exports to the United States in the late twenties, 21.0 per cent in the thirties, and 10.7 per cent after the war. Similar percentages of values of Canadian exports of nonferrous metals to the United Kingdom were 5.5 per cent of total Canadian exports to the United Kingdom in the late twenties, 13.3 per cent in the thirties, and 16.3 per cent after the war.

Total value of mining production, (which includes iron ore and nonmetallic minerals which do not come under the heading of nonferrous metals), gross national expenditure and new investment in durable physical assets in primary mining were plotted in Diagram No. 30. The diagram indicates that values of Canadian mineral production increased substantially from 1926 to 1929, and then declined abruptly to 1932 and increased to 1937. From 1937 to 1938 the decline in the value of mineral production was slight. After the war this production increased substantially.

If changes in mineral production and gross national product are compared, striking differences around the turning points are visible. Changes in national product were not so abrupt. Also the mining production led by one year in recovery





Gross Value and Investment  
Primary Mining Operations  
Millions of Dollars.

Gross National Expenditure  
in Millions of Dollars.



Diagram No.30.

Gross National Expenditure, Gross Value of Primary Mining Operations and New Investment in Durable Physical Assets in Primary Mining Operations, Canada, 1926-1951. In Millions of Dollars.

Source: Table 1 & 10.

— Gross National Expenditure  
— Gross Value of Primary Mining Op.  
— New Investment in Durable Physical Assets in Primary Mining Op.

1926 7 1 1930 1 2 3 4 5 1 1 1 1940 1 2 3 4 5 1 1 1 1950 Year



from the decline of the early thirties. This last difference suggests that changes in mineral production resembled changes in values of exports of nonferrous metals. If so then the earlier recovery in exports and the recovery in mineral production which followed must have helped the Canadian economy to overcome the decline in national income during the early thirties.

New investment in durable physical assets in primary mining increased slightly from 1926 to 1927 and then considerably to 1929. The decline in this investment from 1929 to 1930 was slight, as if this investment lagged behind changes in gross national expenditure, but the decline after 1930 was severe and a very low level was reached in 1932. From 1932 on investment in this field was increasing once more and in 1935 reached nearly the level of 1928. New investment in primary mining levelled off after 1935 till 1942. This was unusual as gross national expenditure and the value of mineral production was increasing up to 1937 and suffered only a slight decline in 1938.

It was difficult to choose representative goods amongst the nonferrous metals group. None of them had the importance of wheat amongst vegetable products, or woodpulp, pulpwood and paper amongst wood products. Perhaps the most representative items are copper, lead and zinc. Their prices resembled to a certain extent the price index of exports of nonferrous metals, and values of their production were comparatively large if compared with many other nonferrous metals. There were, however, other metals with comparatively large values of production also but their prices resembled only slightly the price index of ex-





ports of nonferrous metals. Nickel was a case in point. The price of nickel was very stable before the second world war. Perhaps this was due to the nearly monopolistic situation Canada enjoyed in its production. Values of gold production were also comparatively large and gold prices were either stable or increasing. Silver was added to the group of representative nonferrous metals, because its prices changed in a peculiar manner, although the values of silver production were not large. Reference will be made later to the unique price situation with respect to silver.

Let us examine the volumes produced. Diagram No. 31 records changes in the volumes of our representative nonferrous metals. Zinc production reached a high level in the 1928-30 period, then declined to a lower level in the 1931-2 period. Production increased after 1933 to a level higher than that of 1928-30. There was no decline in volume produced in 1938. None of these changes in volume was very great.

Changes in volume of production of lead and copper resembled each other. The volumes increased till 1930, declined up to 1932 and increased later with no decline visible in 1938. Volumes of nickel production increased from 1926 to 1929, declined steeply to 1932 and increased to 1937. A moderate decline occurred in 1938. Changes in the volumes of nickel produced were comparatively the largest. This could be linked with the stable price which nickel enjoyed during the prewar period. With stable prices volumes fluctuated more widely. Fluctuating prices usually indicated more stable volumes, and all



Copper, Lead, Zinc and Nickel  
in Millions of Lbs.,  
Gold and Silver in Millions  
of Fine Oz.



Diagram No. 31  
Quantities of Production of Selected  
Nonferrous Metals, Canada, 1926-1948. Copper,  
Zinc, Lead, and Nickel in Millions of Lbs.,  
Gold and Silver in Millions of Fine Oz.  
Source: table 39.

— Copper,  
--- Zinc,  
— Lead,  
--- Nickel,  
— Gold,  
--- Silver.





of the nonferrous metals other than nickel and gold came under this category.

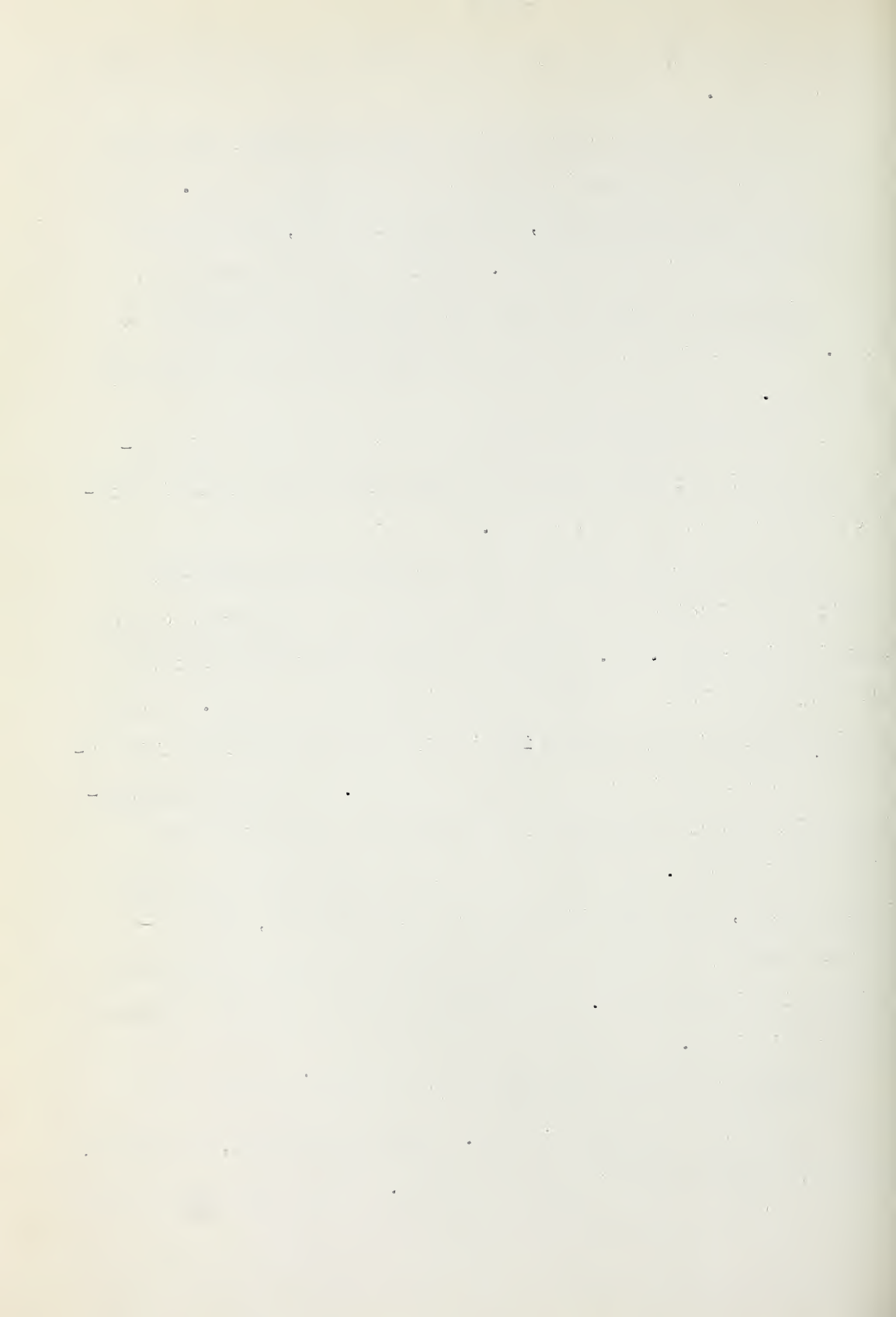
Volumes of production of silver did not change much from 1926 to 1929 and a peak in production occurred in 1930. Later the volume declined to 1933, increased to 1937, and levelled off at the end of the thirties. Volumes of gold production were quite stable from 1926 to 1929 and then increased up to 1932. From 1934 on volumes of gold production were increasing once more.

By the end of the war volumes of production of all non-ferrous metals declined but since the end of the war their production has once more increased.

Values of production of our representative nonferrous metals were fluctuating in a more complicated pattern as can be seen in Diagram No. 32. Values of gold production increased slightly from 1926 to 1929 and then increased steeply. Due to devaluations of many currencies in the thirties part of this increase was due to increased prices of gold. Values of nonmonetary gold exports resembled values of gold production with minor differences. Values of exports of gold increased from 1926 to 1928, declined slightly from 1928 to 1930, then increased steeply to 1934 and from then on continued increasing though at a lesser rate. No decline in values of gold produced occurred in 1938.

Values of zinc and lead production resembled each other though changes in volumes did not. This resemblance, therefore, must have been due to changes in prices. Values of production of





llions of Dollars.

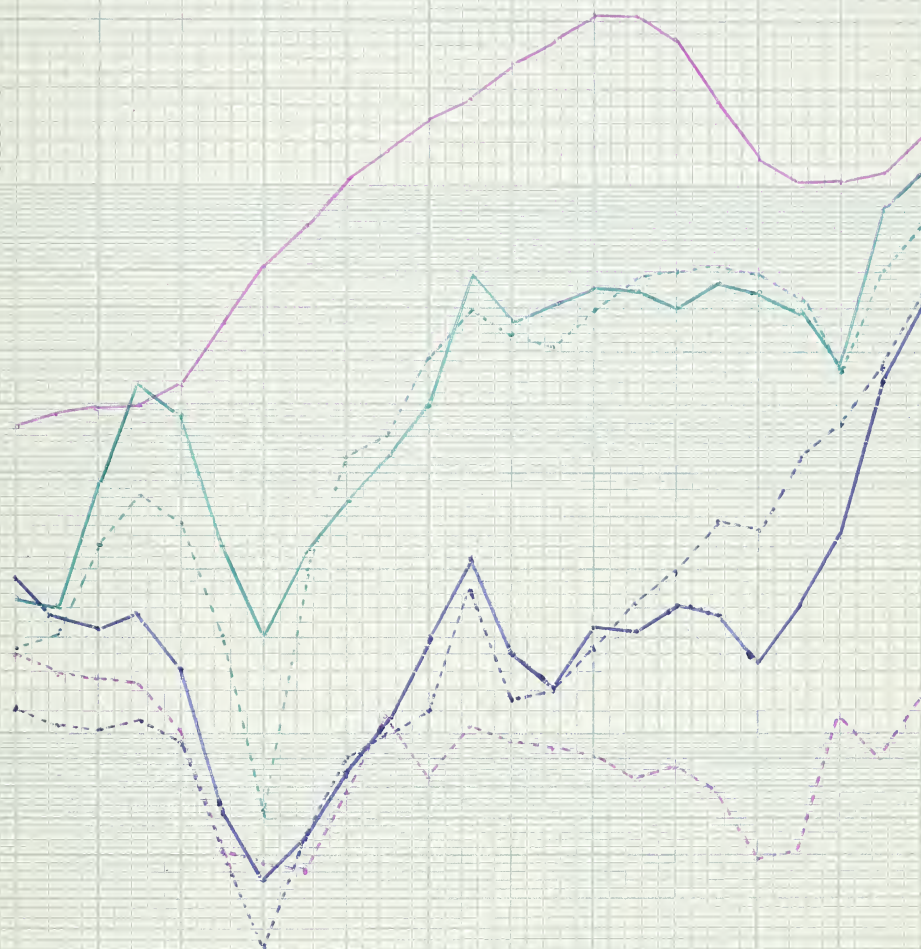


Diagram No. 32.

Value of Production of Selected  
Nonferrous Metals, Canada, 1926-1948.  
In Millions of Dollars.  
Source: Table 38.

— copper,  
- - - zinc,  
— lead,  
- - - nickel,  
— silver,

1926 7 0 1930 1 0 1935 1 0 1940 1 0 1945 1 0 1948 Year



both goods declined slightly from 1926 to 1928, increased slightly in 1929 and then declined to 1932. The following recovery was considerable and a peak was reached in 1937. From then on the value of zinc production declined in 1938 but that of lead declined in 1938 and in 1939.

Changes in the values of production of copper resembled those of zinc and lead, except that the value of copper production declined only from 1926 to 1927 and then increased steeply to 1929. A decline in the value of copper production to 1932, an increase to 1937 and another decline in 1938 resembled changes in values of production of zinc.

Changes in the values of production of nickel resembled those of copper. This time, changes at the end of the thirties were exceptional. Values of nickel production declined in 1938 and in 1939 and those of copper only in 1938. Also the amplitude of changes was comparatively similar though volumes of nickel were highly volatile.

Values of production of silver declined slightly from 1926 to 1929, then declined sharply to 1931, and less sharply to 1933. After 1933 the value of production of silver increased considerably to a peak in 1935 and fluctuated thereafter.

Diagram No. 33 charts changes in prices or in price indexes of our representative nonferrous metals. Prices of nickel were very stable for the whole prewar period. The price of silver changed peculiarly. It declined from 1926 to level off in 1927 and 1928; another slight decline occurred in 1929, and then





Price of silver in dollars per fine oz.,  
 price of nickel in dollars per lb.,  
 price indexes of lead, zinc and copper  
 1926 equal 1.0 .

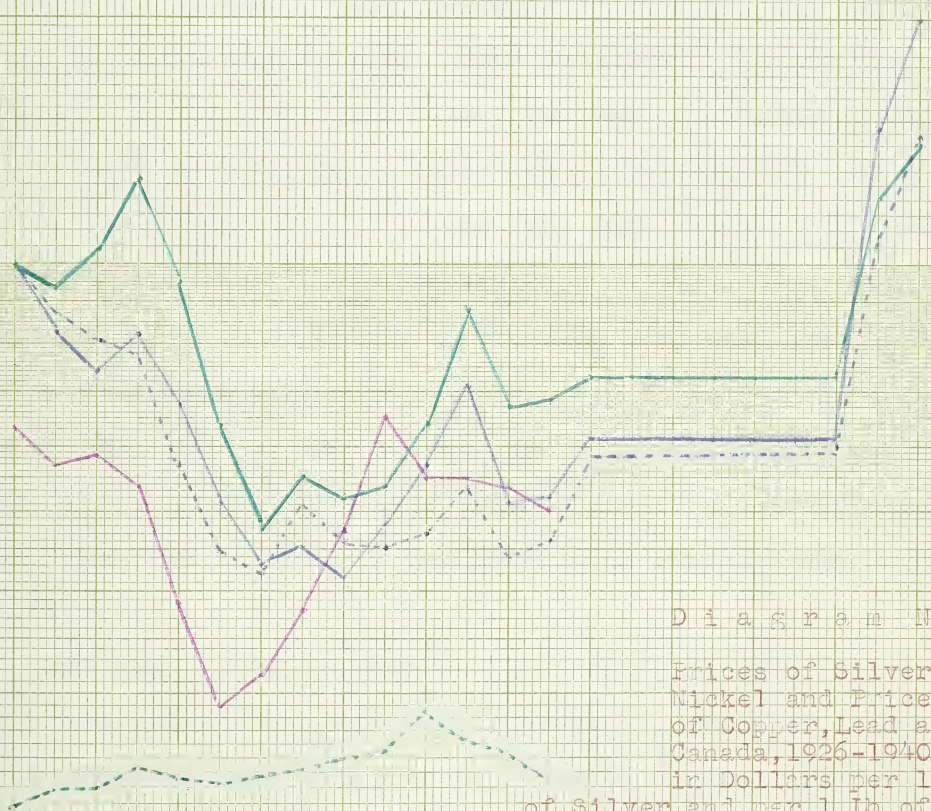


Diagram No.33.

Prices of Silver and  
 Nickel and Price Indexes  
 of Copper, Lead and Zinc,  
 Canada, 1926-1940. Prices  
 in Dollars per 1 Fine Oz

of Silver and per 1 Lb of Nickel;  
 Price Indexes 1926 equal 1.0 .

Source: Table 13 of C.

- price of nickel,
- price of silver,
- price index of lead,
- price index of zinc,
- price index of copper.



prices of silver declined sharply. So far changes in prices of silver resemble those of many other nonferrous metals. The price of silver was lowest in 1931 and then increased sharply to 1935. The high level of silver prices subsequent to 1931 was due to the intervention of the United States Government which set an artificially high price at which silver was bought for monetary use. After 1935 the price of silver declined sharply and levelled off in 1937 and 1938.

Changes in price indexes of copper, lead and zinc resembled to a certain degree those of the price index for exports of nonferrous metals. Price indexes of these three metals declined from 1926. The index for zinc nearly levelled off in 1929 and continued to decline sharply to 1931 and slightly in 1932. The index for lead declined to 1928, increased slightly in 1929, and declined to 1932. The index for copper declined from 1926 to 1927, then increased steeply to 1929 and later declined steeply to 1933. New sharp increases occurred from 1934 in lead prices, from 1935 in copper prices and from 1936 in zinc prices, and this upward movement of prices came to an end in 1937. A new decline in these prices occurred in 1938.

The above price changes could be compared with changes in the price index of exports of nonferrous metals. This price index declined from 1926 to 1928, levelled off in 1929 and declined to 1932. The subsequent recovery was rather slow and showed short term fluctuations. The price index increased





steeply in 1937 and declined in 1938.

The study of prices, volumes and values of our representative nonferrous metals did not lead to clear cut answers. The selected products were only very imperfectly representative, with the exception perhaps of lead, zinc and copper.

High prices of nonferrous metals prevailed in 1926 and then declined. Despite this decline in prices, volumes and values produced and exported soon started to increase and in 1929 prices of certain nonferrous metals also increased. When the decline in national incomes occurred in Canada, in the United States, and in the United Kingdom in 1929, nonferrous metals suffered immediately severe price declines but some of the volumes produced and exported increased even in 1930. Production had to be cut later because exports started to decline. When, however, the British economy ceased to contract in 1932, imports from Canada increased. Canadian production of nonferrous metals followed this lead and volumes and values of mineral production in Canada started to expand leading the recovery in Canadian gross national expenditure by one year.

When the American economy started to expand in 1933 Canadian exports of nonferrous metals continued to increase in volume and value. The volume exported had by 1937 reached double that of 1926. Prices, however, were weak all the time and increased hesitantly and slowly until 1936. The steep increase in prices in 1937 was a temporary phenomenon only and the decline in 1938 negated the gains of 1937. But volumes





and values of production and exports of most of the nonferrous metals did not decline in 1938 and hence were a source of strength for the Canadian economy in that year. Perhaps the rearmament programs exercised their influence by keeping values and volumes produced and exported at a high level.



## Chapter XII. CONCLUSION.

Some theories of business cycles assume that aggregate economic fluctuations arise from fluctuations in investment. In an open economy like Canada such investment must be broadly defined to include not only gross domestic investment but also external investment represented by the balance of trade. The sum of these two series is called gross total investment. In the following table, changes in gross national expenditure in Canada will be compared with gross total investment and two of its components, viz., gross domestic investment and the balance of trade. This last series in turn will be subdivided into two subcomponents, viz., exports and imports.

TABLE

Exports, Imports, the Balance of Trade, Gross Domestic Investment, Gross Total Investment and Gross National Expenditure, Canada, 1926-1938. In Millions of Current Dollars. 1/

1 Year	2 Exports	3 Imports	4 Bal. of Trade (2-3)	5 Gr. Dom. Investm.	6 Gr. Tot. Investm. (4+5)	7 Gr. Nat. Expenit.
1926	1650	1522	+128	897	1025	5294
1927	1618	1629	- 11	1167	1156	5647
1928	1773	1808	- 35	1293	1258	6105
1929	1632	1945	-313	1391	1078	6166

1/ Cf. post tables 1, 8, 12 & 13.





Year	Exports	Imports	Bal. of Trade	Gr. Dom. Investm.	Gr. Tot. Investm.	Gr. Nat. Expendit.
1930	1286	1625	-339	900	561	5546
1931	967	1142	-175	403	228	4560
1932	804	901	- 97	146	49	3767
1933	826	828	- 2	157	155	3552
1934	1018	948	+ 70	376	446	4034
1935	1143	1017	+126	425	551	4345
1936	1428	1183	+245	519	754	4701
1937	1591	1409	+182	741	923	5355
1938	1356	1257	+ 99	595	694	5233

According to our data changes in gross total investment led changes in gross national expenditure twice ( in 1928 and in 1932 ) but no such lead occurred in 1938 when both series showed a decline. These leads support the theory that economic fluctuations in Canada may have arisen from fluctuations in gross total investment. The question still remains as to the underlying causes of fluctuations in investment activity.

Of the two components of gross total investment, changes in gross domestic investment were less active since in data made of yearly aggregates they led changes in gross national expenditure only once, i.e., in 1932. Changes in the balance of trade led those of gross national expenditure always, i.e., three times and occurred earlier than those in the gross total investment. For this reason, swings in the balance of trade were considered to be a highly important determinant of economic activity in Canada.



An inquiry into the composition of the balance of trade revealed that changes in imports resembled those of gross national expenditure. Changes in exports, however, led changes in gross national expenditure, although lagging always behind changes in the balance of trade. In Part II of this study changes in the balance of trade and in exports in Canada were our chief concern.

The Canadian balance of trade changed its direction in 1926 and exports in 1928, leading the change in gross national expenditure which turned down in 1929. A similar lead was shown in the following upswing process. The balance of trade changed its direction in 1930, exports in 1932 and gross national expenditure in 1933. Later the Canadian balance of trade turned downwards from 1936 but exports and imports and gross national expenditure continued to increase until 1938.

Whenever exports showed a lead, contractionary or expansionary impulses originating abroad were spread into Canada. Whenever changes in the balance of trade, alone, but not changes in exports, led changes in gross national expenditure, it was the relative change between Canadian exports and imports that caused the balance of trade to change its direction; and such relative changes could have originated either in Canada or abroad. Consequently changes in the balance of trade in 1926 and in 1930 were apparently due to impulses originating abroad. Changes in 1936 need further inquiry.

The question as to why changes in the balance of trade



always led changes in gross national expenditure is not easily answered. The composition of Canadian exports and imports may have played an important role in registering different patterns of change. Canadian exports consisted mostly of raw materials and partly manufactured goods, and imports mostly of fully manufactured goods. Due to this difference in composition, changes in exports reflected to a degree, the state of foreign demand for Canadian raw materials and partly manufactured goods and changes in imports reflected the state of Canadian demand for foreign fully manufactured products. The difference in the degree of fabrication of these goods may offer an explanation. Whenever economic activity slackens in its rate of growth, the first products affected will be goods in process, i.e., raw materials and half products. The decline in the rate of growth may bring about a decline in the demand for some raw materials and half products first and in fully manufactured products somewhat later. As Canadian exports contained mostly the first kind of goods and Canadian imports mostly the second, the tendency for changes in Canadian exports to lead changes in Canadian imports had to be expected. The balance of trade being the difference between exports and imports was a sensitive indicator of changes in economic activity abroad and at home. This may also explain the early lead shown by the Canadian balance of trade when compared with Canadian gross national expenditure.

In times of declining economic activity abroad the tendency





for the balance of trade and exports to lead should also be recognizable. Whenever economic activity abroad levels off from a decline raw materials and half products, as the goods furthest removed from final use in consumption or investment, should be affected first and so an upturn in the balance of trade may occur, followed eventually by a similar upturn in imports first, then in exports. In summary, the composition of Canadian exports and imports offered a general explanation why the Canadian balance of trade always and Canadian exports often led Canadian gross national expenditure in its turning points. A closer study revealed, however, that this was not the only tendency affecting the Canadian balance of trade in the late twenties and the thirties.

During the late twenties price changes of Canadian exports played an important role also. These prices were extremely advantageous for Canada in 1926. Later during this subperiod they declined to become more in line with the domestic price level. In the case of exports of nonferrous metals, even declining prices appeared advantageous for a time, and total values of these products produced and exported continued to increase.

During the late twenties the value of exports to the United Kingdom was also declining absolutely and also as a percentage of total exports, although total exports were at the same time increasing and as were exports to the United States. Accordingly Canadian trade was adjusting to a different geo-



graphic pattern. Such an adjustment could have been a very painful experience with serious adverse effects on the Canadian national income, but in this case Canada's gross national expenditure expanded. The peculiarly advantageous price structure of exports in the late twenties offers one possible explanation of this rapid economic development during a time of adjustment.

Another possible and perhaps more comprehensive explanation may be based on the differences existing between the American and British economies at that time. During the twenties the British economy progressed slowly and in the late twenties became stagnant at a level of activity of less than full employment. The close links between the Canadian and British economies in the early twenties maintained the Canadian economy in line with the rather low rate of expansion in Britain. The U.S. economy, however, expanded rapidly as did U.S. trade with Canada. Such rapid growth in the United States required a supply of raw materials and partly manufactured goods larger than the United States was able to produce. This might explain both the steady increase in Canadian exports to the United States and the extremely advantageous price structure of exports in 1926 and following. It was the adjustment from trade with a stagnant economy to trade with an expanding economy that benefitted Canada so much. Advantageous prices were only one of the results of such an adjustment.





A study of certain export goods also indicated the importance to the Canadian economy of the decline in demand for exports. The decline in prices and values of exports of agricultural and vegetable products in the late twenties is the best example. These exports were made up to a large extent of wheat and flour. It was found that grain production and especially that of wheat was likely to increase the longer the period of economic expansion continued. In the case of grains, a conscious adjustment to a declining demand can be made only through cuts in the area sown. It is, however, very unlikely that farmers will decrease this area voluntarily even under the impact of very low prices and returns. A prolonged period of low farm income and prices will therefore result. And this is exactly what happened in the late twenties when prices first, and farm income later declined. Even when in the middle of the thirties a new expansion of economic activity began, prices remained extremely low and increased only at the end of the period. Similarly high stocks of unsold grain accumulated even towards the end of the thirties. Such a coincidence of high stocks and low prices at a time when economic expansion comes to an end is significant.

In the case of grain this was due to more than one factor. There was a long term trend visible in grain production and exports indicating a decline in importance for the Canadian economy. A decline in the demand for goods in process at the end of economic expansion had to be expected. Moreover,



farmers were unable to adjust their production to the long-term decline in importance of wheat in the Canadian economy. All these factors together must have accentuated the decline in price and increase in stocks.

Exports of wood products were also a good example of declining demand for raw materials and half products towards the end of the expansion period. Such exports were composed to a large extent of pulpwood, woodpulp and paper. An oversupply of these particular products occurred in the late twenties, but this time a shift in the U.S. demand from mechanically ground to chemically prepared woodpulp was responsible. The U.S. lumber and pulp industry showed evidence of an oligopolistic structure and the Canadian industry was closely linked with its American counterpart. This at first resulted in stable prices but at these prices an oversupply became visible and a price war broke out between two American concerns in 1928 with prices declining sharply.

Prices of exports of nonferrous metals also declined from 1926 but values of exports soon started to rise. The American boom that ended in 1929 was apparently responsible and it is difficult to maintain that the demand for these products declined. This, however, must be judged against a long term rising trend in importance of these products in the Canadian economy and in her exports. If there was a decline in demand abroad the long term tendency for an increased production of





these goods due to a lowered cost structure in Canada may have been strong enough to conceal it.

In the early thirties the British national income did not decline much in comparison with the declines of gross national expenditures of Canada and the United States. The British series reached its lowest level in 1932 leading by one year recoveries in the United States and in Canada. The earlier recovery in the British national income brought about a recovery in British imports from Canada the same year and must have contributed to the earlier recovery in total Canadian exports as they turned upwards from 1932 also.

The impact of British recovery in 1932, however, cannot explain why the Canadian balance of trade improved steadily after 1930. Once again one could infer that the peculiar composition of Canadian exports and imports might have brought about the improvement in the balance of trade in 1930 and contributed to the recovery in exports in 1932. Subsequent to 1932, however, the responsibility must be shared with events in the United Kingdom that increased British imports from Canada.

Changes in the late thirties were slightly different. The balance of trade led exports, imports and gross national expenditure in their turning points but this time the latter series turned downwards the same year, exports showing no lead in turning points when compared with imports and gross national expenditure. Lack of such a lead makes it impossible





to say for certain that the tendency towards contraction in 1938 originated abroad. Even in this case, however, the assumption that factors originating abroad were responsible may be entertained as more plausible. It is known that voluntary changes in inventories are a sensitive indicator of internal rate of growth in economic activity. No turning point in inventories occurred in 1936 or in 1937 when the balance of trade declined. As such an indication of a slackening in economic activity in Canada was lacking, changes abroad could be considered as a more probable reason for the decline in the Canadian balance of trade from 1936.

The post-war period was included in this study as a possible check on the long term trends visible before the war.

A long term decline in importance of trade with the United Kingdom was readily discernable. In the late twenties the British national income became stationary largely due to the deflationary policy pursued in the twenties. British imports from Canada, as a consequence of relatively unattractive prices for goods exported to the United Kingdom, declined in absolute figures and relatively as a percentage of the total Canadian exports. At the same time exports to the United States increased absolutely and relatively and surpassed in value Canadian exports to the United Kingdom. During the thirties the British economy was less depressed than that of the United States and of Canada and demonstrated a lead in



recovery by one year. British imports from Canada regained part of the ground lost in the late twenties and equalled in value those of the United States. Nevertheless, the close links between the Canadian and American economies established in the twenties remained unchanged. After the second world war Canadian trade with the United States again became of primary importance to Canada.

Canadian exports to the United Kingdom differed in their composition from those to the United States. A decline in exports to the United Kingdom caused considerable changes in the composition of Canadian exports. The most important component of Canadian exports to the United Kingdom were agricultural and vegetable products, especially wheat and flour. The decline in importance of exports to the United Kingdom was associated with a decline in importance of this group of exported goods. The increase in exports to the United States did not compensate for the loss of markets for these products as the United States was itself an exporter of such goods.

This decline in importance of exports of agricultural and vegetable products was not entirely due to the decline in exports to the United Kingdom, but showed a tendency to decline independently of trade with the United Kingdom. During the thirties, when exports to the United Kingdom regained part of their importance, exports of agricultural and vegetable products were not so large as they were in the late twenties.





Exports of wood, woodpulp and paper showed a long term tendency to increase slightly. These products were for the most part exported to the United States. With the decline in importance of exports of agricultural and vegetable products Canadian exports of wood, woodpulp and paper to the United Kingdom increased.

The part played by exports of nonferrous metals in total exports and in exports to the United States changed throughout the period. It was the highest in the thirties. It is, however, probable that the post-war figures for exports of these products are deceptively low. During the war, investment in the mining industry was very low; and in mining the production depends to a great extent on the amount of previous investment. One can expect that figures, more up to date than are available at the time of this study, would reveal a rising trend in importance. An increase in the exports of these products to the United Kingdom was apparent throughout the period. The share of exports of these products to the United Kingdom measured as a percentage of total exports of the same products after the war, was twice as high as in 1926.

The following tables reveal the trends in the composition of Canadian exports and in exports to the United Kingdom and to the United States.



TABLE

Value of Exports of Particular Groups of Products, as Percentages of Value of Total Exports, Canada, 1926-1929, 1930-1937, and 1946-1949. 1/

Period	Agricultural & vegetable products.	Wood, woodpulp & paper	Nonferrous metals
1926-9	46.3	22.4	7.0
1930-7	34.5	24.9	16.6
1946-9	24.4	29.8	12.1

TABLE

Values of Exports of Particular Groups of Products Exported to the United Kingdom and to the United States, as Percentages of Value of Total Exports of Such Groups of Products, Canada, 1925-1929, 1930-1937, and 1946-1949.

Period	To the United Kingdom 2/			To the United States 3/		
	Agric. & veget. products	Wood, woodpulp & paper	Nonferr. metals	Agric. & veget. products	Wood, woodpulp & paper	Nonferr. metals
1926-9	55.3	6.2	16.9	10.0	83.9	49.3
1930-7	54.1	11.5	28.2	12.3	72.3	50.5
1946-9	42.7	12.3	33.4	18.2	75.2	40.2

These trends in Canadian exports influenced considerably the total Canadian economy. It was, however, very difficult to compare figures of exports with those of net total production of Canada as the last figures were not so refined as were the data for exports. Production data were divided into agriculture, forestry, mining, etc. The components of

1/ Cf. post table 28.

2/ Cf. post table 31.

3/ Cf. post table 32.

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production were, however, differently defined from the export data. Agriculture contained not only agricultural and vegetable products but also animals and their products. Forestry contained only primary wood production whereas exports of wood, woodpulp and paper included also processed goods. Similarly the domestic category for mining covers primary mining of all types and includes mining of iron ore and non-metallic minerals. The export series for nonferrous metals includes partly processed goods and at the same time excludes iron and its products, the precious metals, nonmetallic minerals, etc.

These differences in the components of export and domestic series make it difficult to compare the figures accurately. The declining trend in exports of agricultural and vegetable products was similar to the declining trend in the domestic importance of agricultural production. In the case of agriculture, the difficulties in exporting agricultural and vegetable products resulted in a change in the structure of Canadian economy: agriculture losing much of its importance. Fluctuations in exports of nonferrous metals vaguely resembled fluctuations in the net mining production. A slightly rising trend in exports of wood, woodpulp and paper did not correspond to the declining trend in primary wood production. This could occur, however, if exports of wood, woodpulp and paper changed its structure to include more





processed goods and less raw materials. In such a case a decline in importance in the forestry sector is compatible with an increase in importance of exports of more processed wood products.

The following table shows the trends in net Canadian production.

TABLE

Value of Net Production, Selected Lines of Production, Canada, 1926-9, 1930-7, and 1946-9, as Percentages of Total Production. 1/

Period	Agriculture	Forestry	Mining
1926-9	33.9	8.1	6.7
1930-7	23.6	7.5	9.7
1946-9	21.9	4.0	5.6

The findings of this paper may be further summarized in the following fashion: the Canadian economy showed a tendency for changes in exports and in the balance of trade to lead changes in gross national expenditure. Although the structure of the Canadian economy has undergone considerable changes since 1929, the prevalence of raw materials and partly manufactured goods in exports and of fully manufactured goods in imports still exists. Therefore one can expect foreign trade to influence the economy in the future as in the period under study.

1/ Cf. post table 42.



The geographical distribution of Canadian exports also changed in the period of this study and the Canadian economy is now linked closely with that of the United States. In the early twenties, the ties between the Canadian economy and that of the United Kingdom were more important. The economies of Canada and the United States fluctuated widely, progressing rapidly in expansion and declining rapidly in contraction. The swings to the extremes were apparently wider than those that would have been experienced in Canada if that country had retained her old links with the United Kingdom. The British economy was more stable than that of the United States; but the greater stability of the British economy was a result of a lesser rate of progress rather than of lesser amplitude of swings around a high level of economic activity. Canada's economy, being linked with the United States, enjoyed increasing national income and a rate of growth even higher than that of the United States.

The decline in importance of agriculture for the whole Canadian economy is more difficult to assess. Agriculture has demonstrated a tendency to overproduction in expansion, and once overproduction has occurred agricultural production cannot easily be adjusted to the lower effective demand for its products. Extreme declines in prices and farm income follow and an economy with a large agricultural sector can remain severely depressed for a long time. On the other hand, in an





economy liable to great fluctuations the nonagricultural sectors can also be greatly affected by declines in economic activity. Moreover, the poverty of farmers may appear preferable to that of industrial workers if unemployed for a long time. In an economy with a large agricultural sector government policy to deal with a declining demand for agricultural products, particularly with a decline in exports of such products, may be very difficult to devise. From such a point of view the long term trend towards the declining importance of agriculture in Canada can be viewed as beneficent.

The progressing diversification of Canadian exports may be considered advantageous. Any considerable decline in Canadian exports will have a depressing influence on the whole economy, and diversification of the geographical distribution of Canadian exports may offer the possibility that a decline in exports to one country will be offset by an increase to another or at least that such a decline could be ameliorated by the stability of trade relations with other countries.

Therefore, the trends in Canadian external trade in the period from 1926 to 1952 should be judged as advantageous for Canada in comparison with the state of affairs that existed prior to the late twenties.



Gross National Expenditure and Changes in It, Canada  
and the United States, Selected Years, 1926-1952.  
In Millions of Current Dollars.

Year	Canadian Gross		American Gross	
	National Expendit.	Change from preceding year	National Expendit.	Change from preceding year
1	2	3	4	5
1926	5294	-	-	-
1927	5647	+ 353	-	-
1928	6105	+ 458	-	-
1929	6166	+ 61	103828	-
1930	5546	- 620	90857	-12971
1931	4560	- 986	75930	-14927
1932	3767	- 793	58340	-17590
1933	3552	- 215	55760	- 2580
1934	4034	+ 482	64868	+ 9108
1935	4345	+ 311	72193	+ 7325
1936	4701	+ 356	82483	+10290
1937	5355	+ 654	90213	+ 7730
1938	5233	- 122	84683	- 5530
1939	5705	+ 474	91339	+ 6656
1940	6872	+1165	101443	+10104
1941	8517	+1645	126417	+24974
1942	10539	+2022	161551	+35134
1943	11183	+ 644	194338	+32787
1944	11954	+ 771	213688	+19350
1945	11850	- 104	215210	+ 1522
1946	12026	+ 176	211110	- 4100
1947	13768	+1740	233264	+22154
1948	15613	+1845	259045	+25781
1949	16462	+ 849	257348	- 1697
1950	18203	+1741	282630	+25282
1951	21450	+3247	329800	+47170
1952	23011	+1561	348000	+18200

Canada: National Accounts, Income and Expenditure, 1926-1950, (DBS, Ottawa, 1952), hereinafter cited as National Accounts, 1926-1950. National Accounts, Income and Expenditure, 1949-1952, (DBS, Ottawa, 1953), hereinafter cited as National Accounts, 1949-1952.

The : National Income, 1951 Edition, A Supplement to the United States Survey of Current Business, (U.S. States Department of Commerce, Washington, 1951), hereinafter cited as National Income, 1951 Edition. Federal Reserve Bulletin, (Board of Governors, Washington, August, 1953), hereinafter cited as Federal Reserve Bulletin, Aug., 1953.





# T A B L E 2

Gross National Expenditure and Changes in It, Canada and the United States, Selected Years, 1926-1952. In Millions of Constant Dollars. (Canada - 1935-9 dollars; the United States - 1939 dollars).

Year	Canadian Gross		American Gross	
	National Expendit.	Change from preceding year	National Expendit.	Change from preceding year
1	2	3	4	5
1926	4548	-	-	-
1927	4926	+ 378	-	-
1928	5330	+ 404	-	-
1929	5337	+ 7	85900	-
1930	5127	- 210	-	-
1931	4475	- 652	-	-
1932	4096	- 379	-	-
1933	3772	- 324	61500	-
1934	4208	+ 436	-	-
1935	4530	+ 322	-	-
1936	4738	+ 208	-	-
1937	5201	+ 463	-	-
1938	5246	+ 45	-	-
1939	5664	+ 418	91300	-
1940	6487	+ 823	-	-
1941	7481	+ 994	-	-
1942	8941	+1460	-	-
1943	9374	+ 433	-	-
1944	9721	+ 347	-	-
1945	9315	- 406	153400	-
1946	9045	- 270	138400	-15000
1947	9163	+ 118	138600	+ 200
1948	9438	+ 275	143500	+ 4900
1949	9722	+ 284	144000	+ 500
1950	10330	+ 308	154800	+10800
1951	10899	+ 569	167300	+12500
1952	11554	+ 655	-	-

Canada : National Accounts, 1926-1950.  
National Accounts, 1949-1952.

The United States : Statistical Abstract of the United States, 1952.  
(U.S. Department of Commerce, Bureau of the Census, Washington, 1952).





T A B L E    3

Net National Income, Home Produced in Millions of Pounds,  
and Real National Income in Millions of International  
Units 1/, Great Britain, 1926-1939.

Year	Net National Income		Real National Income	
	Amount £	Change from preceding year	Amount I.U.	Change from preceding year
1	2	3	4	5
1926	4148	-	19860	-
1927	4338	-190	21020	-1160
1928	4317	- 21	21430	- 410
1929	4363	- 46	23220	-1790
1930	4152	-211	22470	- 750
1931	3896	-256	21710	- 760
1932	3819	- 77	21600	- 110
1933	3908	- 89	22340	- 740
1934	4199	-201	23920	-1580
1935	4465	-266	25540	-1620
1936	4755	-290	26740	-1200
1937	4987	-232	27780	-1040
1938	5183	-196	27550	- 230
1939	-	-	29150	-1600

Collin Clark, The Conditions of Economic Progress,  
(Macmillan & Co., London, 1951, second edition).

1/ I.U. - international unit as defined on page 19  
C.Clark's, The Conditions of Economic Progress.



T A B L E 4

Components of Personal Consumption of Goods and Services,  
Canada, 1926-1952. In Millions of Current Dollars

Year 1	Durable goods consumpt. 2	Nondurable goods consumpt. 3	Services consumpt. 4	Total personal consumpt. 5
1926	279	2060	1348	3687
1927	324	2197	1398	3919
1928	348	2377	1469	4194
1929	387	2459	1547	4393
1930	308	2363	1533	4204
1931	232	2014	1400	3649
1932	167	1705	1236	3108
1933	150	1609	1128	2887
1934	194	1758	1125	3077
1935	229	1830	1184	3243
1936	259	1962	1236	3457
1937	313	2154	1310	3777
1938	291	2145	1379	3815
1939	292	2210	1402	3904
1940	361	2520	1518	4399
1941	390	3032	1631	5053
1942	295	3465	1754	5514
1943	278	3673	1776	5727
1944	296	3928	1963	6187
1945	338	4327	2146	6811
1946	590	5073	2314	7977
1947	852	5776	2545	9173
1948	914	6461	2737	10112
1949	1084	6799	3080	10963
1950	1343	7114	3405	12029
1951	1399	7904	3931	13234
1952	1567	8397	4326	14290

National Accounts, 1926-1950.

National Accounts, Income and Expenditure, Preliminary  
1952, (DBS, Ottawa, 1953), hereinafter cited as National  
Accounts, Preliminary 1952.

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY  
WASHINGTON, D. C.

No.	Name	Quantity	Value	Remarks
1	...	...	...	...
2	...	...	...	...
3	...	...	...	...
4	...	...	...	...
5	...	...	...	...
6	...	...	...	...
7	...	...	...	...
8	...	...	...	...
9	...	...	...	...
10	...	...	...	...
11	...	...	...	...
12	...	...	...	...
13	...	...	...	...
14	...	...	...	...
15	...	...	...	...
16	...	...	...	...
17	...	...	...	...
18	...	...	...	...
19	...	...	...	...
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21	...	...	...	...
22	...	...	...	...
23	...	...	...	...
24	...	...	...	...
25	...	...	...	...
26	...	...	...	...
27	...	...	...	...
28	...	...	...	...
29	...	...	...	...
30	...	...	...	...
31	...	...	...	...
32	...	...	...	...
33	...	...	...	...
34	...	...	...	...
35	...	...	...	...
36	...	...	...	...
37	...	...	...	...
38	...	...	...	...
39	...	...	...	...
40	...	...	...	...
41	...	...	...	...
42	...	...	...	...
43	...	...	...	...
44	...	...	...	...
45	...	...	...	...
46	...	...	...	...
47	...	...	...	...
48	...	...	...	...
49	...	...	...	...
50	...	...	...	...
51	...	...	...	...
52	...	...	...	...
53	...	...	...	...
54	...	...	...	...
55	...	...	...	...
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57	...	...	...	...
58	...	...	...	...
59	...	...	...	...
60	...	...	...	...
61	...	...	...	...
62	...	...	...	...
63	...	...	...	...
64	...	...	...	...
65	...	...	...	...
66	...	...	...	...
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69	...	...	...	...
70	...	...	...	...
71	...	...	...	...
72	...	...	...	...
73	...	...	...	...
74	...	...	...	...
75	...	...	...	...
76	...	...	...	...
77	...	...	...	...
78	...	...	...	...
79	...	...	...	...
80	...	...	...	...
81	...	...	...	...
82	...	...	...	...
83	...	...	...	...
84	...	...	...	...
85	...	...	...	...
86	...	...	...	...
87	...	...	...	...
88	...	...	...	...
89	...	...	...	...
90	...	...	...	...
91	...	...	...	...
92	...	...	...	...
93	...	...	...	...
94	...	...	...	...
95	...	...	...	...
96	...	...	...	...
97	...	...	...	...
98	...	...	...	...
99	...	...	...	...
100	...	...	...	...

...



T A B L E 5

Components of Personal Consumption of Goods and Services,  
the United States, 1929-1952. In Millions of Current Dollars.

Year	Durable goods consumpt.	Nondurable goods consumpt.	Services consumpt.	Total personal consumpt.
1	2	3	4	5
1929	9362	37742	31657	78761
1930	7275	34052	29462	70789
1931	5569	28955	26629	61153
1932	3694	22743	22771	49208
1933	3503	22254	20589	46346
1934	4255	26732	20895	51882
1935	5158	29377	21680	56215
1936	6374	32874	23254	62515
1937	7005	35232	24884	67121
1938	5754	34032	24727	64513
1939	6729	35258	25479	67466
1940	7854	37594	26604	72052
1941	9750	43960	28545	82255
1942	7060	52871	31230	91161
1943	6824	60970	34450	102244
1944	7103	67054	37393	111550
1945	8472	74886	39721	123079
1946	16573	85849	44485	141907
1947	21369	95142	49059	165570
1948	22883	100889	54118	177890
1949	23899	98720	57555	180174
1950	29157	102310	62101	193568
1951	27300	113400	67400	208100
1952	26700	118800	72700	218100

National Income, 1951 Edition.

Federal Reserve Bulletin, August 1953.



# T A B L E 6

Government Spending, Canada and the United States, Selected Years, 1926-1952. In Millions of Current Dollars.

Year	Canada			United States
	Federal spending	Province. & municipal spending	Total govt. spending	Govt. purchases of goods & serv.
1	2	3	4	5
1926	133	388	521	-
1927	145	422	567	-
1928	152	445	597	-
1929	173	509	682	8472
1930	186	581	767	9169
1931	159	579	738	9218
1932	134	509	643	8077
1933	130	396	526	7958
1934	143	425	568	9750
1935	172	431	603	9886
1936	165	435	600	11743
1937	163	508	671	11590
1938	185	535	720	12750
1939	222	513	735	13068
1940	690	475	1165	13933
1941	1204	485	1689	24704
1942	3250	476	3726	59724
1943	3736	491	4227	88630
1944	4488	534	5022	96523
1945	3110	594	3704	82836
1946	1090	742	1832	30916
1947	639	931	1570	28612
1948	679	1119	1798	36598
1949	880	1248	2128	43599
1950	971	1343	2314	42499
1951	1683	1518	3201	62900
1952	2498	1713	4211	77700

Canada : National Accounts, 1926-1950.  
National Accounts, Preliminary 1952.

The United States : National Income 1951 Edition.  
Federal Reserve Bulletin, Aug. 1953.





T A B L E 7

Government Surplus (-) or Deficit (+), Canada and the United States, Selected Years, 1926-1950. In Millions of Current Dollars.

Year	Canada			United States
	Federal	Province.& municipal	Total	
1	2	3	4	5
1926	- 68	+ 12	- 56	-
1927	- 68	+ 21	- 47	-
1928	- 105	+ 21	- 84	-
1929	- 56	+ 47	- 9	- 1067
1930	+ 96	+126	+ 222	+ 257
1931	+ 160	+151	+ 311	+ 2798
1932	+ 154	+123	+ 277	+ 1705
1933	+ 114	+ 60	+ 174	+ 1272
1934	+ 93	+ 97	+ 190	+ 2355
1935	+ 121	+ 51	+ 172	+ 1849
1936	+ 37	- 3	+ 34	+ 2879
1937	- 9	+ 42	+ 33	- 685
1938	+ 87	+ 65	+ 152	+ 1490
1939	+ 2	+ 39	+ 41	+ 1867
1940	+ 137	- 74	+ 63	+ 547
1941	+ 27	- 92	- 65	+ 3493
1942	+1722	-161	+1561	+31163
1943	+1941	-164	+1777	+43917
1944	+2708	-142	+2566	+51362
1945	+1830	-143	+1687	+39239
1946	+ 244	-111	+ 133	- 4581
1947	- 685	- 88	- 773	-13443
1948	- 762	+ 16	- 743	- 8206
1949	- 497	+ 57	- 440	+ 2785
1950	- 572	+ 14	- 558	- 8014

Canada : National Accounts, 1926-1950, table 32.  
The United States : National Income, 1951 Edition.



Date	Description	Amount				Balance
		To	By	Debit	Credit	
1911						
Jan 1						100.00
Jan 10	Jan 10	10.00				90.00
Jan 20	Jan 20	20.00				70.00
Jan 30	Jan 30	30.00				40.00
Feb 1	Feb 1		10.00			50.00
Feb 10	Feb 10	10.00				40.00
Feb 20	Feb 20	20.00				20.00
Feb 30	Feb 30	30.00				0.00
Mar 1	Mar 1		10.00			10.00
Mar 10	Mar 10	10.00				0.00
Mar 20	Mar 20	20.00				20.00
Mar 30	Mar 30	30.00				50.00
Apr 1	Apr 1		10.00			40.00
Apr 10	Apr 10	10.00				30.00
Apr 20	Apr 20	20.00				10.00
Apr 30	Apr 30	30.00				0.00
May 1	May 1		10.00			10.00
May 10	May 10	10.00				0.00
May 20	May 20	20.00				20.00
May 30	May 30	30.00				50.00
Jun 1	Jun 1		10.00			40.00
Jun 10	Jun 10	10.00				30.00
Jun 20	Jun 20	20.00				10.00
Jun 30	Jun 30	30.00				0.00
Jul 1	Jul 1		10.00			10.00
Jul 10	Jul 10	10.00				0.00
Jul 20	Jul 20	20.00				20.00
Jul 30	Jul 30	30.00				50.00
Aug 1	Aug 1		10.00			40.00
Aug 10	Aug 10	10.00				30.00
Aug 20	Aug 20	20.00				10.00
Aug 30	Aug 30	30.00				0.00
Sep 1	Sep 1		10.00			10.00
Sep 10	Sep 10	10.00				0.00
Sep 20	Sep 20	20.00				20.00
Sep 30	Sep 30	30.00				50.00
Oct 1	Oct 1		10.00			40.00
Oct 10	Oct 10	10.00				30.00
Oct 20	Oct 20	20.00				10.00
Oct 30	Oct 30	30.00				0.00
Nov 1	Nov 1		10.00			10.00
Nov 10	Nov 10	10.00				0.00
Nov 20	Nov 20	20.00				20.00
Nov 30	Nov 30	30.00				50.00
Dec 1	Dec 1		10.00			40.00
Dec 10	Dec 10	10.00				30.00
Dec 20	Dec 20	20.00				10.00
Dec 30	Dec 30	30.00				0.00
Total						

Total Balance Forward : 100.00  
 Total Debit : 100.00  
 Total Credit : 100.00

Components of Gross Domestic Investment, Canada, 1926-1952.  
In Millions of Current Dollars.

Year	New Residential Construction	New Nonresident. Construction	New Machinery & Equipment	Changes in Inventories	Gross Domestic Investment (2+3+4+5)
1	2	3	4	5	6
1926	212	240	357	+ 88	897
1927	217	299	433	+ 218	1167
1928	236	411	489	+ 157	1293
1929	247	486	597	+ 61	1391
1930	204	381	469	- 154	900
1931	168	264	261	- 290	403
1932	96	121	145	- 216	146
1933	76	79	84	- 82	157
1934	98	92	116	+ 70	376
1935	114	118	146	+ 47	425
1936	139	150	180	+ 50	519
1937	176	190	281	+ 94	741
1938	159	171	275	- 10	595
1939	185	166	254	+ 331	936
1940	200	210	408	+ 369	1187
1941	233	288	557	+ 247	1325
1942	194	354	496	+ 316	1360
1943	174	366	305	- 109	736
1944	225	257	377	- 46	813
1945	272	252	462	- 260	726
1946	371	443	584	+ 519	1917
1947	506	599	1016	+ 947	3086
1948	637	818	1230	+ 605	3290
1949	742	903	1323	+ 231	3199
1950	801	1026	1389	+ 960	4176
1951	781	1260	1769	+ 1620	5430
1952	803	1476	1859	+ 278	4416

National Accounts, 1926-1950.

National Accounts, 1949-1952.



T A B L E 9

Components of Gross Private Domestic Investment, the United States, 1929-1952. In Millions of Current Dollars.

Year	New Construction	Productive Durable Equipment	Changes in Business Inventories	Gross Private Domestic Investment (2+3+4)
1	2	3	4	5
1929	7824	6438	+ 1562	15824
1930	5560	4926	- 283	10209
1931	3561	3162	- 1361	5362
1932	1668	1781	- 2563	886
1933	1142	1783	- 1619	1306
1934	1420	2531	- 1144	2807
1935	1890	3351	+ 905	6146
1936	2783	4531	+ 1004	8318
1937	3687	5444	+ 2309	11440
1938	3309	3975	- 973	6311
1939	4899	4577	+ 441	9917
1940	5566	6108	+ 2275	13949
1941	6784	7676	+ 3874	18334
1942	3951	4857	+ 2065	10873
1943	2549	4082	- 922	5709
1944	2817	5706	- 809	7714
1945	3934	7545	- 746	10733
1946	10291	12328	+ 6107	28726
1947	13904	17080	- 797	30187
1948	17716	19948	+ 5029	42693
1949	17250	19010	- 3213	33047
1950	22068	22461	+ 4388	48867
1951	23100	24600	+10900	58600
1952	23400	25400	+ 3700	52500

National Income, 1951 Edition.

Federal Reserve Bulletin, August, 1953.





T A B L E 10

New Private Construction Activity, the United States, 1929-1950.  
In Millions of Current Dollars.

Year	New Private Construction Activity	New Private Residential Construction Activity	New Private Nonresidential Construction Activity
1	2	3	4
1929	8307	3478	4829
1930	5883	2182	3701
1931	3768	1624	2144
1932	1676	654	1022
1933	1231	499	732
1934	1509	661	848
1935	1999	1071	928
1936	2981	1641	1340
1937	3903	1975	1928
1938	3560	2069	1491
1939	4389	2786	1603
1940	5054	3130	1924
1941	6206	3692	2514
1942	3415	1850	1565
1943	1979	1006	973
1944	2186	923	1263
1945	3235	1200	2035
1946	9638	4424	5214
1947	13131	6921	6210
1948	16665	9251	7414
1949	16181	8888	7293
1950	20789	13162	7627

Remark: These figures differ from New Construction as given in Table 9.

National Income, 1951 Edition, Table 31.



T A B L E 11

Components of Gross Domestic Investment, Canada, 1926-1952.  
In Millions of Constant Dollars (1935-1939 = 100).

Year	New Residential Construction	New Nonresident. Construction	New Machinery & Equipment	Changes in Inventories
1	2	3	4	5
1926	197	228	337	+119
1927	202	284	424	+216
1928	214	382	482	+158
1929	214	439	575	+ 48
1930	181	357	471	+126
1931	160	267	273	-159
1932	100	128	152	- 80
1933	84	86	89	-125
1934	103	99	124	+ 23
1935	121	125	153	+ 48
1936	143	155	187	-113
1937	169	182	273	+ 35
1938	156	167	267	+127
1939	180	164	247	+338
1940	183	200	370	+316
1941	191	260	470	+ 53
1942	147	298	406	-214
1943	122	295	238	-120
1944	150	204	298	- 77
1945	177	199	374	-203
1946	225	330	467	+226
1947	276	401	723	+240
1948	303	486	775	+ 85
1949	332	516	788	+ 48
1950	340	554	784	+389
1951	291	606	893	+657
1952	290	665	934	+257

National Accounts, 1925-1950.

National Accounts, 1949-1952.



T A B L E 1 2

Balance of Trade, Canada, 1926-1952. In Millions of Current and Constant Dollars (Constant dollars 1935-1939 = 100).

Year 1	Current dollars 2	Constant dollars 3
1926	+128	+ 73
1927	- 11	- 54
1928	- 35	- 56
1929	-313	-264
1930	-339	-291
1931	-175	-107
1932	- 97	+ 35
1933	- 2	+ 71
1934	+ 70	+133
1935	+126	+158
1936	+245	+245
1937	+182	+145
1938	+ 99	+ 89
1939	+123	+164
1940	+179	+225
1941	+491	+545
1942	+ 54	+215
1943	+527	+672
1944	- 8	+164
1945	+687	+544
1946	+332	+149
1947	+ 17	- 60
1948	+418	+235
1949	+174	+106
1950	-330	- 68
1951	-524	-120
1952	+164	+ 11

National Accounts, 1926-1950.

National Accounts, 1949-1952.





T A B L E 13

Exports and Imports of Goods and Services, Canada, 1926-1952.  
In Millions of Current Dollars and Constant Dollars (constant  
dollars 1935-9 = 100).

Year 1	Current dollars		Constant dollars	
	Exports 2	Imports 3	Exports 4	Imports 5
1926	1650	1522	1207	1134
1927	1618	1629	1220	1274
1928	1773	1808	1391	1447
1929	1632	1945	1314	1578
1930	1286	1625	1157	1448
1931	967	1142	1055	1162
1932	804	901	974	939
1933	826	828	982	911
1934	1018	948	1101	968
1935	1143	1017	1218	1060
1936	1428	1183	1456	1211
1937	1591	1409	1482	1337
1938	1356	1257	1350	1261
1939	1451	1328	1494	1330
1940	1808	1629	1681	1456
1941	2467	1976	2194	1649
1942	2361	2307	1945	1730
1943	3444	2917	2728	2056
1944	3561	3569	2614	2450
1945	3597	2910	2548	2004
1946	3210	2878	2079	1930
1947	3638	3621	2053	2113
1948	4054	3636	2104	1869
1949	4011	3837	2016	1910
1950	4183	4513	2027	2095
1951	5089	5613	2220	2340
1952	5581	5417	2453	2442

National Accounts, 1925-1950.

National Accounts, 1949-1952.

1. The following table shows the results of the survey conducted in the year 2000. The data is presented in the form of a table with 5 columns and 10 rows. The first column represents the year, the second column represents the number of respondents, the third column represents the number of respondents who are male, the fourth column represents the number of respondents who are female, and the fifth column represents the number of respondents who are married.

Year	Number of respondents	Number of respondents who are male	Number of respondents who are female	Number of respondents who are married
2000	1000	500	500	200
2001	1200	600	600	250
2002	1400	700	700	300
2003	1600	800	800	350
2004	1800	900	900	400
2005	2000	1000	1000	450
2006	2200	1100	1100	500
2007	2400	1200	1200	550
2008	2600	1300	1300	600
2009	2800	1400	1400	650
2010	3000	1500	1500	700
2011	3200	1600	1600	750
2012	3400	1700	1700	800
2013	3600	1800	1800	850
2014	3800	1900	1900	900
2015	4000	2000	2000	950
2016	4200	2100	2100	1000
2017	4400	2200	2200	1050
2018	4600	2300	2300	1100
2019	4800	2400	2400	1150
2020	5000	2500	2500	1200

2. The following table shows the results of the survey conducted in the year 2000. The data is presented in the form of a table with 5 columns and 10 rows. The first column represents the year, the second column represents the number of respondents, the third column represents the number of respondents who are male, the fourth column represents the number of respondents who are female, and the fifth column represents the number of respondents who are married.

T A B L E 14

Exports and Imports of Goods and Services and the Balance of Trade, the United States, 1926-1952. In Millions of Current Dollars.

Year 1	Exports 2	Imports 3	Balance of Trade 4
1926	6451	5997	+ 454
1927	6539	5818	+ 721
1928	6937	5910	+1027
1929	6796	6025	+ 771
1930	5219	4529	+ 680
1931	3457	3260	+ 197
1932	2356	2187	+ 169
1933	2304	2156	+ 150
1934	2860	2431	+ 429
1935	3131	3185	- 54
1936	3291	3384	- 93
1937	4287	4225	+ 62
1938	4176	3067	+1109
1939	4240	3352	+ 888
1940	5204	3695	+1509
1941	5821	4697	+1124
1942	4802	5009	- 207
1943	4419	6664	-2245
1944	5297	7396	-2099
1945	7143	8581	-1438
1946	12360	7799	+4561
1947	17705	8810	+8895
1948	14094	12230	+1864
1949	13733	13205	+ 528
1950	12738	15042	-2304
1951			+ 300
1952			- 200

1926-1928: Hal B. Lary and Associates, The United States in the World Economy, (reprint. by H.M. Printing Office, London, 1944).

1929-1950: National Income, 1951 Edition.

1951-1952: Federal Reserve Bulletin, Aug.1953.

# 1941-1942

Summary of the 1941-1942 season, showing the results of the various projects and the progress of the work.

Project	1941	1942	Total
Project A	100	150	250
Project B	200	300	500
Project C	300	400	700
Project D	400	500	900
Project E	500	600	1100
Project F	600	700	1300
Project G	700	800	1500
Project H	800	900	1700
Project I	900	1000	1900
Project J	1000	1100	2100
Project K	1100	1200	2300
Project L	1200	1300	2500
Project M	1300	1400	2700
Project N	1400	1500	2900
Project O	1500	1600	3100
Project P	1600	1700	3300
Project Q	1700	1800	3500
Project R	1800	1900	3700
Project S	1900	2000	3900
Project T	2000	2100	4100
Project U	2100	2200	4300
Project V	2200	2300	4500
Project W	2300	2400	4700
Project X	2400	2500	4900
Project Y	2500	2600	5100
Project Z	2600	2700	5300
Project AA	2700	2800	5500
Project AB	2800	2900	5700
Project AC	2900	3000	5900
Project AD	3000	3100	6100
Project AE	3100	3200	6300
Project AF	3200	3300	6500
Project AG	3300	3400	6700
Project AH	3400	3500	6900
Project AI	3500	3600	7100
Project AJ	3600	3700	7300
Project AK	3700	3800	7500
Project AL	3800	3900	7700
Project AM	3900	4000	7900
Project AN	4000	4100	8100
Project AO	4100	4200	8300
Project AP	4200	4300	8500
Project AQ	4300	4400	8700
Project AR	4400	4500	8900
Project AS	4500	4600	9100
Project AT	4600	4700	9300
Project AU	4700	4800	9500
Project AV	4800	4900	9700
Project AW	4900	5000	9900
Project AX	5000	5100	10100
Project AY	5100	5200	10300
Project AZ	5200	5300	10500
Project BA	5300	5400	10700
Project BB	5400	5500	10900
Project BC	5500	5600	11100
Project BD	5600	5700	11300
Project BE	5700	5800	11500
Project BF	5800	5900	11700
Project BG	5900	6000	11900
Project BH	6000	6100	12100
Project BI	6100	6200	12300
Project BJ	6200	6300	12500
Project BK	6300	6400	12700
Project BL	6400	6500	12900
Project BM	6500	6600	13100
Project BN	6600	6700	13300
Project BO	6700	6800	13500
Project BP	6800	6900	13700
Project BQ	6900	7000	13900
Project BR	7000	7100	14100
Project BS	7100	7200	14300
Project BT	7200	7300	14500
Project BU	7300	7400	14700
Project BV	7400	7500	14900
Project BW	7500	7600	15100
Project BX	7600	7700	15300
Project BY	7700	7800	15500
Project BZ	7800	7900	15700
Project CA	7900	8000	15900
Project CB	8000	8100	16100
Project CC	8100	8200	16300
Project CD	8200	8300	16500
Project CE	8300	8400	16700
Project CF	8400	8500	16900
Project CG	8500	8600	17100
Project CH	8600	8700	17300
Project CI	8700	8800	17500
Project CJ	8800	8900	17700
Project CK	8900	9000	17900
Project CL	9000	9100	18100
Project CM	9100	9200	18300
Project CN	9200	9300	18500
Project CO	9300	9400	18700
Project CP	9400	9500	18900
Project CQ	9500	9600	19100
Project CR	9600	9700	19300
Project CS	9700	9800	19500
Project CT	9800	9900	19700
Project CU	9900	10000	19900

The above table shows the results of the various projects and the progress of the work. The total amount of work done is 19900 units.

Summary of the 1941-1942 season, showing the results of the various projects and the progress of the work.



T A B L E 15

Exports of Merchandise, Gold and Services, Canada,  
1926-1950. In Millions of Current Dollars.

Year	Merchand.	Gold	Services includ. divid.& interest	Exports as per Nat.A/cs.
1	2	3	4	5
1926	1272	30	363	1650
1927	1215	32	386	1618
1928	1341	40	407	1773
1929	1178	37	431	1632
1930	880	39	378	1286
1931	601	57	314	967
1932	495	70	243	804
1933	532	82	215	826
1934	648	114	258	1018
1935	732	119	294	1143
1936	954	132	344	1428
1937	1041	145	407	1591
1938	844	161	356	1356
1939	906	184	367	1451
1940	1202	203	371	1808
1941	1732	204	522	2467
1942	2515	184	677	3376
1943	3050	142	872	3444
1944	3590	110	857	3561
1945	3474	96	886	3597
1946	2393	96	876	3210
1947	2723	99	924	3638
1948	3030	119	998	4054
1949	2989	139	949	4011
1950	3139	163	927	4173

Remarks: Columns 2, 3 & 4 plus adjustments here not given  
add up to the values of column 5.

National Accounts, 1926-1950, pp. 80-81.

Statement of the Department of the Interior, Bureau of Land Management, for the year ending June 30, 1915.

Approved: \_\_\_\_\_  
Special Agent in Charge, Bureau of Land Management.

				+
1914	1915	1916	1917	1918
1919	1920	1921	1922	1923
1924	1925	1926	1927	1928
1929	1930	1931	1932	1933
1934	1935	1936	1937	1938
1939	1940	1941	1942	1943
1944	1945	1946	1947	1948
1949	1950	1951	1952	1953
1954	1955	1956	1957	1958
1959	1960	1961	1962	1963
1964	1965	1966	1967	1968
1969	1970	1971	1972	1973
1974	1975	1976	1977	1978
1979	1980	1981	1982	1983
1984	1985	1986	1987	1988
1989	1990	1991	1992	1993
1994	1995	1996	1997	1998
1999	2000	2001	2002	2003
2004	2005	2006	2007	2008
2009	2010	2011	2012	2013
2014	2015	2016	2017	2018
2019	2020	2021	2022	2023
2024	2025	2026	2027	2028
2029	2030	2031	2032	2033
2034	2035	2036	2037	2038
2039	2040	2041	2042	2043
2044	2045	2046	2047	2048
2049	2050	2051	2052	2053
2054	2055	2056	2057	2058
2059	2060	2061	2062	2063
2064	2065	2066	2067	2068
2069	2070	2071	2072	2073
2074	2075	2076	2077	2078
2079	2080	2081	2082	2083
2084	2085	2086	2087	2088
2089	2090	2091	2092	2093
2094	2095	2096	2097	2098
2099	2100	2101	2102	2103
2104	2105	2106	2107	2108
2109	2110	2111	2112	2113
2114	2115	2116	2117	2118
2119	2120	2121	2122	2123
2124	2125	2126	2127	2128
2129	2130	2131	2132	2133
2134	2135	2136	2137	2138
2139	2140	2141	2142	2143
2144	2145	2146	2147	2148
2149	2150	2151	2152	2153
2154	2155	2156	2157	2158
2159	2160	2161	2162	2163
2164	2165	2166	2167	2168
2169	2170	2171	2172	2173
2174	2175	2176	2177	2178
2179	2180	2181	2182	2183
2184	2185	2186	2187	2188
2189	2190	2191	2192	2193
2194	2195	2196	2197	2198
2199	2200	2201	2202	2203
2204	2205	2206	2207	2208
2209	2210	2211	2212	2213
2214	2215	2216	2217	2218
2219	2220	2221	2222	2223
2224	2225	2226	2227	2228
2229	2230	2231	2232	2233
2234	2235	2236	2237	2238
2239	2240	2241	2242	2243
2244	2245	2246	2247	2248
2249	2250	2251	2252	2253
2254	2255	2256	2257	2258
2259	2260	2261	2262	2263
2264	2265	2266	2267	2268
2269	2270	2271	2272	2273
2274	2275	2276	2277	2278
2279	2280	2281	2282	2283
2284	2285	2286	2287	2288
2289	2290	2291	2292	2293
2294	2295	2296	2297	2298
2299	2300	2301	2302	2303
2304	2305	2306	2307	2308
2309	2310	2311	2312	2313
2314	2315	2316	2317	2318
2319	2320	2321	2322	2323
2324	2325	2326	2327	2328
2329	2330	2331	2332	2333
2334	2335	2336	2337	2338
2339	2340	2341	2342	2343
2344	2345	2346	2347	2348
2349	2350	2351	2352	2353
2354	2355	2356	2357	2358
2359	2360	2361	2362	2363
2364	2365	2366	2367	2368
2369	2370	2371	2372	2373
2374	2375	2376	2377	2378
2379	2380	2381	2382	2383
2384	2385	2386	2387	2388
2389	2390	2391	2392	2393
2394	2395	2396	2397	2398
2399	2400	2401	2402	2403
2404	2405	2406	2407	2408
2409	2410	2411	2412	2413
2414	2415	2416	2417	2418
2419	2420	2421	2422	2423
2424	2425	2426	2427	2428
2429	2430	2431	2432	2433
2434	2435	2436	2437	2438
2439	2440	2441	2442	2443
2444	2445	2446	2447	2448
2449	2450	2451	2452	2453
2454	2455	2456	2457	2458
2459	2460	2461	2462	2463
2464	2465	2466	2467	2468
2469	2470	2471	2472	2473
2474	2475	2476	2477	2478
2479	2480	2481	2482	2483
2484	2485	2486	2487	2488
2489	2490	2491	2492	2493
2494	2495	2496	2497	2498
2499	2500	2501	2502	2503
2504	2505	2506	2507	2508
2509	2510	2511	2512	2513
2514	2515	2516	2517	2518
2519	2520	2521	2522	2523
2524	2525	2526	2527	2528
2529	2530	2531	2532	2533
2534	2535	2536	2537	2538
2539	2540	2541	2542	2543
2544	2545	2546	2547	2548
2549	2550	2551	2552	2553
2554	2555	2556	2557	2558
2559	2560	2561	2562	2563
2564	2565	2566	2567	2568
2569	2570	2571	2572	2573
2574	2575	2576	2577	2578
2579	2580	2581	2582	2583
2584	2585	2586	2587	2588
2589	2590	2591	2592	2593
2594	2595	2596	2597	2598
2599	2600	2601	2602	2603
2604	2605	2606	2607	2608
2609	2610	2611	2612	2613
2614	2615	2616	2617	2618
2619	2620	2621	2622	2623
2624	2625	2626	2627	2628
2629	2630	2631	2632	2633
2634	2635	2636	2637	2638
2639	2640	2641	2642	2643
2644	2645	2646	2647	2648
2649	2650	2651	2652	2653
2654	2655	2656	2657	2658
2659	2660	2661	2662	2663
2664	2665	2666	2667	2668
2669	2670	2671	2672	2673
2674	2675	2676	2677	2678
2679	2680	2681	2682	2683
2684	2685	2686	2687	2688
2689	2690	2691	2692	2693
2694	2695	2696	2697	2698
2699	2700	2701	2702	2703
2704	2705	2706	2707	2708
2709	2710	2711	2712	2713
2714	2715	2716	2717	2718
2719	2720	2721	2722	2723
2724	2725	2726	2727	2728
2729	2730	2731	2732	2733
2734	2735	2736	2737	2738
2739	2740	2741	2742	2743
2744	2745	2746	2747	2748
2749	2750	2751	2752	2753
2754	2755	2756	2757	2758
2759	2760	2761	2762	2763
2764	2765	2766	2767	2768
2769	2770	2771	2772	2773
2774	2775	2776	2777	2778
2779	2780	2781	2782	2783
2784	2785	2786	2787	2788
2789	2790	2791	2792	2793
2794	2795	2796	2797	2798
2799	2800	2801	2802	2803
2804	2805	2806	2807	2808
2809	2810	2811	2812	2813
2814	2815	2816	2817	2818
2819	2820	2821	2822	2823
2824	2825	2826	2827	2828
2829	2830	2831	2832	2833
2834	2835	2836	2837	2838
2839	2840	2841	2842	2843
2844	2845	2846	2847	2848
2849	2850	2851	2852	2853
2854	2855	2856	2857	2858
2859	2860	2861	2862	2863
2864	2865	2866	2867	2868
2869	2870	2871	2872	2873
2874	2875	2876	2877	2878
2879	2880	2881	2882	2883
2884	2885	2886	2887	2888
2889	2890	2891	2892	2893
2894	2895	2896	2897	2898
2899	2900	2901	2902	2903
2904	2905	2906	2907	2908
2909	2910	2911	2912	2913
2914	2915	2916	2917	2918
2919	2920	2921	2922	2923
2924	2925	2926	2927	2928
2929	2930	2931	2932	2933
2934	2935	2936	2937	2938
2939	2940	2941	2942	2943
2944	2945	2946	2947	2948
2949	2950	2951	2952	2953
2954	2955	2956	2957	2958
2959	2960	2961	2962	2963
2964	2965	2966	2967	2968
2969	2970	2971	2972	2973
2974	2975	2976	2977	2978
2979	2980	2981	2982	2983
2984	2985	2986	2987	2988
2989	2990	2991	2992	2993
2994	2995	2996	2997	2998
2999	3000	3001	3002	3003
3004	3005	3006	3007	3008
3009	3010	3011	3012	3013
3014	3015	3016	3017	3018
3019	3020	3021	3022	3023
3024	3025	3026	3027	3028
3029	3030	3031	3032	3033
3034	3035	3036	3037	3038
3039	3040	3041	3042	3043
3044	3045	3046	3047	3048
3049	3050	3051	3052	3053
3054	3055	3056	3057	3058
3059	3060	3061	3062	3063
3064	3065	3066	3067	3068
3069	3070	3071	3072	3073
3074	3075	3076	3077	3078
3079	3080	3081	3082	3083
3084	3085	3086	3087	3088
3089	3090	3091	3092	3093
3094	3095	3096	3097	3098
3099	3100	3101	3102	3103
310				

T A B L E 16

Imports of Goods and Services, Canada, 1926-1950.  
In Millions of Current Dollars.

Year	Imports of Goods	Payments for Services rendered by Nonresidents	Total Imports 1/ 4
1	2	3	4
1926	973	565	1522
1927	1057	586	1629
1928	1209	611	1808
1929	1272	685	1945
1930	973	661	1625
1931	580	566	1142
1932	398	506	901
1933	368	463	828
1934	484	468	948
1935	526	494	1017
1936	612	574	1183
1937	776	637	1409
1938	649	612	1257
1939	713	618	1328
1940	1006	621	1629
1941	1264	703	1976
1942	1406	869	2307
1943	1579	1279	2917
1944	1398	2141	3569
1945	1442	1468	2910
1946	1822	1083	2878
1947	2535	1126	3621
1948	2598	1078	3676
1949	2696	1194	3837
1950	3129	1416	4482

National Accounts, 1926-1950.

1/ Includes Imports of goods, payments for services rendered by nonresidents and adjustment.

THE UNIVERSITY OF CHICAGO, CHICAGO, ILL. 60637  
 DEPARTMENT OF CHEMISTRY

DATE	NAME	INITIALS	GRADE
1918	ALLEN	W. H.	PH.D.
1918	BROWN	J. E.	PH.D.
1918	CLARK	R. M.	PH.D.
1918	DAVIS	L. A.	PH.D.
1918	EVANS	C. D.	PH.D.
1918	FERGUSON	H. G.	PH.D.
1918	GILBERT	F. J.	PH.D.
1918	HARRIS	M. K.	PH.D.
1918	JONES	P. L.	PH.D.
1918	KELLEY	S. N.	PH.D.
1918	LEWIS	T. O.	PH.D.
1918	MARTIN	V. P.	PH.D.
1918	NEEDHAM	W. Q.	PH.D.
1918	OLIVER	X. R.	PH.D.
1918	PARSONS	Y. S.	PH.D.
1918	REYNOLDS	Z. T.	PH.D.
1918	SMITH	A. U.	PH.D.
1918	THOMAS	B. V.	PH.D.
1918	WATSON	C. W.	PH.D.
1918	WHITE	D. X.	PH.D.
1918	YOUNG	E. Y.	PH.D.
1918	ZIMMERMAN	F. Z.	PH.D.

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 DEPARTMENT OF CHEMISTRY

T A B L E 17

Exports of Merchandise (excluding nonmonetary gold), Totals, to the United Kingdom and to the United States, Canada, 1926-1948. In Millions of Current Dollars.

Year	Totals	To United Kingdom		To the United States	
		value 1/ 3	per cent of total 2/ 4	value 5	per cent of total 6
1926	1272	315	24.8	476	37.4
1927	1215	271	22.3	489	40.2
1928	1341	288	21.5	507	37.8
1929	1178	224	19.0	519	44.1
1930	880	174	19.6	397	45.1
1931	601	139	23.1	254	42.2
1932	495	149	30.1	169	34.2
1933	532	188	35.3	177	33.3
1934	648	234	36.1	226	34.8
1935	732	258	35.2	285	39.0
1936	954	342	35.8	369	38.5
1937	1041	385	37.0	391	37.6
1938	844	337	40.0	268	31.7
1939	906	332	36.6	344	37.0
1940	1202	542	45.1	424	35.3
1941	1732	914	52.7	566	32.7
1942	2515	1424	56.6	911	36.2
1943	3050	1636	53.6	1224	40.1
1944	3590	1796	50.0	1444	40.2
1945	3474	1422	49.3	1134	32.6
1946	2393	626	26.2	948	39.6
1947	2723	749	27.5	1061	39.0
1948 3/3030		703	23.2	1508	50.0

The Canadian Balance of International Payments, 1926-1948,  
(DBS, Ottawa, 1949), pp. 154-6, 158-9 & 161.

1/ adjusted-excluding estimated wheat exports diverted to other overseas countries.

2/ adjusted.

3/ subject to revision.



... ..  
 ... ..  
 ... ..  
 ... ..

Date	Particulars	Debit	Credit	Balance
1910				
Jan 1	Balance			100.00
Jan 15	...	...		...
Jan 30	...	...		...
Feb 15	...	...		...
Feb 28	...	...		...
Mar 15	...	...		...
Mar 31	...	...		...
Apr 15	...	...		...
Apr 30	...	...		...
May 15	...	...		...
May 31	...	...		...
Jun 15	...	...		...
Jun 30	...	...		...
Jul 15	...	...		...
Jul 31	...	...		...
Aug 15	...	...		...
Aug 31	...	...		...
Sep 15	...	...		...
Sep 30	...	...		...
Oct 15	...	...		...
Oct 31	...	...		...
Nov 15	...	...		...
Nov 30	...	...		...
Dec 15	...	...		...
Dec 31	...	...		...

... ..  
 ... ..

... ..

...

...

T A B L E 18

Exports according to the Degree of Manufacture, Canada,  
Selected Years, 1926-1949. As Percentages of Total  
Exports of Merchandise. From Data in Current Dollars.

Year 1	Raw Materials 2	Partly manufact. goods 3	Fully manufact. goods 4
1926	47.1	14.4	38.5
1927	46.2	14.6	39.2
1928	47.2	15.4	37.4
1929	48.5	14.3	37.2
1930	38.3	19.1	42.6
1931	38.2	17.8	44.0
1933	42.7	14.2	43.1
1934	36.5	21.4	42.1
1937	38.2	22.5	39.3
1938	24.8	38.6	36.6
1939	27.8	26.6	45.6
1945	26.7	16.6	56.7
1948	26.4	26.6	47.0
1949	32.4	24.4	43.2

1926-1931 calendar: Canada Year Book, 1932, (DBS, Ottawa, 1932),  
p. 410, hereinafter cited as C.Y.B. 1932.

1933 calendar: C.Y.B. 1947, p. 876.

1934 fiscal: C.Y.B. 1934/35, p. 546-7.

1937 calendar: C.Y.B. 1947, p. 876.

1938 fiscal: C.Y.B. 1939, p. 500.

1939 & 1945 calendar: C.Y.B. 1947, p. 876.

1948 calendar: computed from C.Y.B. 1950, p. 937.

1949 calendar: computed from C.Y.B. 1951, p. 918-9.

# ANNEX 1

1. The purpose of this annex is to provide a detailed description of the data collected during the survey. The data is organized into four main categories: Demographics, Attitudes, Behaviors, and Socioeconomic Status. Each category contains a list of variables and their corresponding measurement scales.

Variable	Measurement Scale	Unit	Range
Age	Continuous	Years	18-80
Gender	Categorical	Male/Female	1-2
Education	Categorical	Years of schooling	0-16
Income	Continuous	USD	0-10000
Health Status	Categorical	Good/Bad	1-2
Attitude towards...	Likert Scale	Agree/Disagree	1-5
Behavioral Frequency	Frequency Scale	Times per week	0-7
Socioeconomic Index	Composite Score	Index	0-100

2. The data collection process involved a series of steps to ensure accuracy and reliability. First, a pilot study was conducted to test the survey instrument. Then, the survey was distributed to a representative sample of the population. The data was then collected and entered into a database for analysis.

T A B L E    1 9

Imports according to the Degree of Manufacture, Canada,  
Selected Years, 1926-1949. As Percentages of Total Imports  
of Merchandise. From Data in Current Dollars.

Year	Raw materials	Partly manufact.	Chiefly manufact.
1	2	3	4
1926	27.6	10.0	62.4
1927	25.6	10.1	64.3
1928	25.6	9.6	64.8
1929	23.0	8.0	69.0
1930	23.1	7.7	69.2
1931	23.9	7.6	68.5
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1934	30.1	8.9	61.0
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1938	30.1	5.5	64.4
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1945	27.0	5.9	67.1
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1948	27.9	7.4	64.7
1949	25.0	7.2	67.8
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1926-1931 calendar:	<u>C.Y.B. 1932</u> , p. 410.
1934 fiscal:	<u>C.Y.B. 1934/35</u> , p. 546-7.
1938 fiscal:	<u>C.Y.B. 1939</u> , p. 500.
1945 calendar:	computed from <u>C.Y.B. 1947</u> , p. 895.
1948 calendar:	computed from <u>C.Y.B. 1950</u> , p. 937.
1949 calendar:	computed from <u>C.Y.B. 1951</u> , p. 918-9.





T A B L E    2 0

Imports and Exports according to the Degree of Manufacture, the United States, 1926-1931. As Percentages of Total Imports and Exports. From Data in Current Dollars.

	Year	Raw	Partly	Chiefly
	1	Materials	Manufactured	Manufactured
		2	3	4
Imports	1926	54.5	17.8	27.7
	1927	51.1	17.8	31.1
	1928	50.3	18.0	31.7
	1929	47.9	19.8	32.3
	1930	46.5	20.4	33.1
	1931	45.8	18.7	35.5
Exports	1926	33.4	13.6	53.0
	1927	35.0	14.1	50.9
	1928	32.3	14.9	52.9
	1929	29.6	13.8	56.6
	1930	27.0	13.8	59.2
	1931	29.1	13.3	57.6

C.Y.B. 1932, p. 410.

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T A B L E 21

Export and Import Price Deflators (price indexes),  
Canada, 1926-1952 (1935-9 = 100).

Year	Export Prices	Import Prices	External Terms of Trade (Export by Import Prices)
1	2	3	4
1926	136.7	134.2	1.02
1927	132.6	127.9	1.04
1928	127.4	125.0	1.02
1929	124.2	123.3	1.01
1930	111.1	112.2	0.99
1931	91.7	98.3	0.93
1932	82.5	95.9	0.86
1933	84.1	90.9	0.93
1934	92.5	97.9	0.94
1935	93.8	95.9	0.98
1936	98.1	97.7	1.00
1937	107.4	105.4	1.02
1938	100.4	99.7	1.01
1939	97.1	99.9	0.97
1940	107.6	111.9	0.96
1941	112.4	119.8	0.94
1942	121.4	133.4	0.91
1943	126.3	141.9	0.89
1944	136.2	145.7	0.94
1945	141.2	145.2	0.97
1946	154.4	149.1	1.04
1947	177.2	171.4	1.03
1948	192.7	194.5	0.99
1949	199.0	200.9	0.99
1950	206.4	215.4	0.96
1951	229.2	239.9	0.96
1952	227.5	221.8	1.03

National Accounts, 1926-1950.

National Accounts, 1949-1952.



T A B L E 22

Wholesale Price Indexes, Canada, 1926-1949 (1935-9 = 100).

Year	General Wholesale Index	Raw and Partly Manufact.	Fully and Chiefly Manufact.	Terms of Internal Trade (item 3 over 4)
1	2	3	4	5
1926	130.3	129.1	133.0	0.97
1927	127.3	129.0	128.3	1.01
1928	125.6	125.9	126.3	1.00
1929	124.6	126.1	123.7	1.00
1930	112.9	107.5	116.1	0.93
1931	94.0	83.2	99.5	0.84
1932	86.9	75.5	92.8	0.81
1933	87.4	79.3	93.3	0.85
1934	93.4	89.9	97.7	0.92
1935	94.4	93.8	94.7	0.99
1936	96.7	97.9	96.1	1.02
1937	107.8	114.1	104.4	1.09
1938	101.9	99.2	103.5	0.96
1939	99.3	95.1	101.9	0.93
1940	108.2	103.5	109.9	0.94
1941	116.6	115.0	118.8	0.97
1942	123.3	123.7	123.7	1.00
1943	128.3	132.1	126.9	1.04
1944	130.9	135.3	129.1	1.13
1945	132.4	137.2	129.8	1.06
1946	139.2	141.0	138.0	1.02
1947	163.6	165.2	162.4	1.02
1948	193.9	197.7	192.4	1.03
1949	198.9	198.9	199.2	1.00

Wholesale Price Indexes, 1913-1950, (DBS Reference Paper,  
No. 24, Ottawa, 1951.)





T A B L E 23

Individual Commodity Wholesale Price Indexes, Canada,  
1926-1948 (prices 1926 = 100).

Year	Wheat lo. Manitoba Northern	Newsprint	Ground Woodpulp	Copper	Lead	Zinc
1	2	3	4	5	6	7
1926	100.0	100.0	100.0	100.0	100.0	100.0
1927	99.0	100.0	93.7	93.8	82.4	87.3
1928	90.2	97.7	89.5	104.0	74.3	80.9
1929	89.8	84.9	92.2	126.7	81.9	77.8
1930	63.0	84.9	94.3	95.0	67.4	57.6
1931	39.3	77.2	86.0	63.5	51.1	44.9
1932	37.2	66.8	72.6	47.7	43.1	42.2
1933	40.8	52.6	68.9	55.1	45.4	50.9
1934	50.0	51.1	70.4	52.1	41.8	46.0
1935	56.5	51.1	64.6	53.8	48.1	45.2
1936	62.7	52.6	67.7	63.9	56.9	47.1
1937	89.6	55.5	84.2	88.1	71.1	63.4
1938	67.9	66.7	73.3	66.9	51.2	44.2
1939	43.1	68.5	78.7	68.3	51.9	46.1
1940	51.6	72.8	108.5	72.7	61.3	58.4
1941	50.0	72.8	110.7	72.9	61.3	58.4
1942	55.8	72.8	126.4	72.9	61.3	58.4
1943	71.9	80.6	127.3	72.9	61.3	58.4
1944	83.6	86.3	137.5	72.9	61.3	58.4
1945	83.6	90.1	138.4	72.9	61.3	58.4
1946	83.6	105.5	155.6	72.9	61.3	58.4
1947	102.0	122.3	198.8	121.2	147.0	106.3
1948	119.0	133.1	203.8	141.9	200.1	143.6

Price and Price Indexes, 1948, (DBS, Ottawa, 1949), p.  
17-22, table 6.

RECEIPTS

Date	Particulars	Amount		Total		Balance
		To	By	To	By	
1917						
Jan 1						
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Mar 27						
Mar 28						
Mar 29						
Mar 30						
Mar 31						

1917

T A B L E 24

Average Value of 1 fine oz. of Silver and 1 lb. of Nickel,  
Canada, 1926-1939. In Dollars.

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Year	Silver	Nickel
1	2	3
<hr/>		
1926	0.629	0.219
1927	0.57	0.229
1928	0.586	0.23
1929	0.536	0.246
1930	0.387	0.236
1931	0.29	0.233
1932	0.317	0.237
1933	0.378	0.242
1934	0.475	0.250
1935	0.651	0.255
1936	0.451	0.288
1937	0.449	0.264
1938	0.435	0.256
1939	0.405	0.234

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Private and Public Investment in Canada, 1925-1951,  
(DBS, Ottawa, 1951), p. 153.





T A B L E 25

Index Numbers of Wholesale Prices of Exported Merchandise,  
Canada, for the Fiscal Years 1926-1938 (1926 = 100).

Year	Vegetab. & their products	Wood, woodpulp & paper	Iron & its products	Nonferr. metals	Total wholesale
1	2	3	4	5	6
1926	100.0	100.0	100.0	100.0	100.0
1927	97.0	99.1	97.4	90.7	97.8
1928	88.8	98.7	91.9	87.5	94.2
1929	89.3	91.9	91.3	88.0	92.2
1930	65.3	87.3	87.4	75.4	77.4
1931	41.7	78.3	82.7	66.2	60.5
1932	40.4	68.1	81.3	65.2	54.9
1933	44.9	60.0	75.8	68.6	55.2
1934	53.4	62.5	78.0	67.8	60.6
1935	56.7	60.8	78.0	73.8	62.2
1936	63.9	65.0	80.1	71.1	66.8
1937	87.2	72.1	95.2	79.9	81.1
1938	66.4	73.4	93.9	70.7	70.9

C.Y.B. 1939, p. 859.

Summary of results of the 1948-1949 season. The following table shows the results of the 1948-1949 season, and the results of the 1947-1948 season, for the purpose of comparison.

Year	1948-1949	1947-1948	1946-1947	1945-1946	1944-1945
1948-1949	100.0	100.0	100.0	100.0	100.0
1947-1948	100.0	100.0	100.0	100.0	100.0
1946-1947	100.0	100.0	100.0	100.0	100.0
1945-1946	100.0	100.0	100.0	100.0	100.0
1944-1945	100.0	100.0	100.0	100.0	100.0
1943-1944	100.0	100.0	100.0	100.0	100.0
1942-1943	100.0	100.0	100.0	100.0	100.0
1941-1942	100.0	100.0	100.0	100.0	100.0
1940-1941	100.0	100.0	100.0	100.0	100.0
1939-1940	100.0	100.0	100.0	100.0	100.0
1938-1939	100.0	100.0	100.0	100.0	100.0
1937-1938	100.0	100.0	100.0	100.0	100.0
1936-1937	100.0	100.0	100.0	100.0	100.0
1935-1936	100.0	100.0	100.0	100.0	100.0
1934-1935	100.0	100.0	100.0	100.0	100.0
1933-1934	100.0	100.0	100.0	100.0	100.0
1932-1933	100.0	100.0	100.0	100.0	100.0
1931-1932	100.0	100.0	100.0	100.0	100.0
1930-1931	100.0	100.0	100.0	100.0	100.0
1929-1930	100.0	100.0	100.0	100.0	100.0
1928-1929	100.0	100.0	100.0	100.0	100.0
1927-1928	100.0	100.0	100.0	100.0	100.0
1926-1927	100.0	100.0	100.0	100.0	100.0
1925-1926	100.0	100.0	100.0	100.0	100.0
1924-1925	100.0	100.0	100.0	100.0	100.0
1923-1924	100.0	100.0	100.0	100.0	100.0
1922-1923	100.0	100.0	100.0	100.0	100.0
1921-1922	100.0	100.0	100.0	100.0	100.0
1920-1921	100.0	100.0	100.0	100.0	100.0
1919-1920	100.0	100.0	100.0	100.0	100.0
1918-1919	100.0	100.0	100.0	100.0	100.0
1917-1918	100.0	100.0	100.0	100.0	100.0
1916-1917	100.0	100.0	100.0	100.0	100.0
1915-1916	100.0	100.0	100.0	100.0	100.0
1914-1915	100.0	100.0	100.0	100.0	100.0
1913-1914	100.0	100.0	100.0	100.0	100.0
1912-1913	100.0	100.0	100.0	100.0	100.0
1911-1912	100.0	100.0	100.0	100.0	100.0
1910-1911	100.0	100.0	100.0	100.0	100.0
1909-1910	100.0	100.0	100.0	100.0	100.0
1908-1909	100.0	100.0	100.0	100.0	100.0
1907-1908	100.0	100.0	100.0	100.0	100.0
1906-1907	100.0	100.0	100.0	100.0	100.0
1905-1906	100.0	100.0	100.0	100.0	100.0
1904-1905	100.0	100.0	100.0	100.0	100.0
1903-1904	100.0	100.0	100.0	100.0	100.0
1902-1903	100.0	100.0	100.0	100.0	100.0
1901-1902	100.0	100.0	100.0	100.0	100.0
1900-1901	100.0	100.0	100.0	100.0	100.0

1948-1949

T A B L E    2 6

Index Numbers of Physical Volume of Exports of Merchandise,  
Canada, for the Fiscal Years 1926-1938 (1926 = 100).

Year	Vegetab. & their products	Wood, woodpulp & paper	Iron & its products	Nonferr. metals	Total Wholesale
1	2	3	4	5	6
1926	100.0	100.0	100.0	100.0	100.0
1927	97.4	104.0	100.1	84.6	97.6
1928	99.4	107.7	82.0	105.8	99.0
1929	129.0	110.9	133.6	136.5	117.7
1930	74.7	115.9	122.4	167.8	95.4
1931	80.4	97.1	79.3	121.6	83.5
1932	72.6	83.1	26.9	144.1	76.6
1933	79.6	66.4	29.0	126.9	74.2
1934	66.2	89.1	58.4	164.7	80.2
1935	1/75.7	88.4	92.4	159.2	83.7
1936	1/76.0	88.7	116.8	192.3	88.9
1937	1/85.8	93.8	113.5	201.5	95.1
1938	1/97.6	102.0	139.2	217.5	101.6

1926-1928: C.Y.B. 1932, p. 496.  
 1929-1934: C.Y.B. 1934, p. 634-5.  
 1935-1938: C.Y.B. 1939, p. 557.

1/ Computed from data based on 1936 = 100.

# Table 1

Table 1 shows the results of the analysis of variance for the different treatments. The values in parentheses are the degrees of freedom.

Treatment	Mean	Standard Error	Standard Deviation	Variance	D.F.
Control	1.00	0.10	0.32	0.10	10
T1	1.10	0.12	0.36	0.14	10
T2	1.20	0.15	0.42	0.18	10
T3	1.30	0.18	0.48	0.22	10
T4	1.40	0.20	0.50	0.25	10
T5	1.50	0.22	0.52	0.28	10
T6	1.60	0.25	0.56	0.32	10
T7	1.70	0.28	0.60	0.36	10
T8	1.80	0.30	0.62	0.38	10
T9	1.90	0.32	0.64	0.40	10
T10	2.00	0.35	0.68	0.45	10

Table 1 shows the results of the analysis of variance for the different treatments. The values in parentheses are the degrees of freedom.

Table 1 shows the results of the analysis of variance for the different treatments. The values in parentheses are the degrees of freedom.

T A B L E 2 7

Exports of Merchandise according to the Kind of Produce,  
Canada, 1926-1939, 1945-1949. In Millions of Current  
Dollars.

Year	Agricult. & vegetab. products	Wood, woodpulp & paper	Iron & its products	Nonferr. metals	Total exports
1	2	3	4	5	6
1926	588.9	286.3	75.6	74.7	1261.2
1927	575.0	284.1	74.3	82.6	1252.2
1928	555.1	284.5	62.8	90.8	1228.4
1929	646.5	288.7	82.3	112.8	1363.7
1930	584.3	289.6	78.6	154.3	1120.3
1931	292.3	230.6	38.9	95.7	799.7
1932	204.4	175.7	15.4	69.1	576.3
1933	203.4	120.9	17.3	42.6	473.8
1934	205.8	143.1	26.6	81.8	579.3
1935	226.2	160.9	40.7	191.3	756.6
1936	242.9	181.8	52.4	212.6	849.0
1937	346.5	223.4	53.2	230.2	1061.2
1938	235.3	253.4	69.8	292.5	1070.2
1939	220.1	242.5	63.1	182.9	924.9
-----					
1945	819.4	488.0	555.1	352.5	3218.3
-----					
1946	578.5	625.6	227.5	247.8	2312.2
1947	683.7	886.2	273.2	303.9	2774.9
1948	643.7	953.7	281.5	395.9	3075.4
1949	773.0	875.3	292.9	426.6	2993.0
-----					
1926	calendar: C.Y.B. 1947, p. 890-1.				
1927	fiscal : C.Y.B. 1932, p. 495-6.				
1928-1930	fiscal : C.Y.B. 1932, p. 424.				
1931-1934	fiscal : C.Y.B. 1934/35, p. 562.				
1935-1936	fiscal : C.Y.B. 1939, p. 510-1.				
1937-1938	fiscal : C.Y.B. 1939, p. 487.				
1939&1945-1946	calendar: C.Y.B. 1947, p. 890-1.				
1947-1949	calendar: C.Y.B. 1951, p. 902-9.				



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Abstract    Learning    Nursing    Research    Review

Case	Age	Sex	Site	Pathologic	Survival
1	60	M	Rectum	Adenocarcinoma	10 years
2	65	F	Rectum	Adenocarcinoma	12 years
3	70	M	Rectum	Adenocarcinoma	15 years
4	75	F	Rectum	Adenocarcinoma	18 years
5	80	M	Rectum	Adenocarcinoma	20 years

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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T A B L E 28

Exports of Merchandise according to the Kind of Produce,  
Canada, 1926-1939, 1945-1949. In Percentages of Total  
Exports. From Data in Current Dollars.

Year	Agricult. & vegetab. products	Wood, woodpulp & paper	Iron & its products	Nonferr. metals	
1	2	3	4	5	
1926	46.7	22.7	6.0	5.9	
1927	45.8	22.6	5.9	6.6	
1928	45.2	23.2	5.1	7.4	
1929	47.4	21.3	6.0	8.3	
1930	34.3	25.8	7.0	13.8	
1931	36.5	28.8	4.9	12.0	
1932	35.5	30.5	2.7	12.0	
1933	42.9	25.5	3.7	9.0	
1934	35.5	24.7	4.6	14.1	
1935	29.9	21.2	5.4	25.3	
1936	28.6	21.4	6.2	25.0	
1937	32.6	21.4	5.0	21.7	
1938	22.0	23.7	6.5	27.3	
1939	23.8	26.2	6.8	19.8	
-----					
1945	25.5	15.2	17.2	11.0	
-----					
1946	25.0	27.1	9.8	10.5	
1947	24.7	31.9	9.8	10.9	
1948	20.9	31.0	9.1	12.9	
1949	26.0	29.3	9.7	14.3	
-----					
1926/9	46.3	22.4	5.6	7.0	Arithm. mean of perc.
1930/7	34.5	24.9	4.9	16.6	as above
1946/9	24.4	29.8	9.6	12.1	as above
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Sources and calendar or fiscal years as in table 27.



T A B L E    2 9

Exports of Merchandise to the United Kingdom according to the Kind of Produce, Canada, 1926-1939, 1945-1949. In Millions of Current Dollars.

Year	Agricult. & vegetab. products	Wood, wood pulp & paper	Iron & its products	Nonferr. metals	Total exports to U.K.
1	2	3	4	5	6
1926	339.3	16.4	6.9	13.8	459.2
1927	330.1	15.8	8.1	14.2	468.6
1928	310.2	17.2	8.2	15.7	410.7
1929	325.1	22.4	8.7	16.3	429.7
1930	186.5	21.5	6.8	15.4	281.7
1931	141.1	17.4	4.1	17.2	219.2
1932	98.7	13.7	3.8	17.3	174.0
1933	114.2	11.3	5.6	14.6	184.4
1934	112.5	20.4	5.2	35.8	227.6
1935	127.7	25.5	10.1	63.1	290.9
1936	154.3	28.8	11.2	61.8	321.6
1937	197.1	36.1	13.0	75.8	408.0
1938	145.3	45.4	16.5	107.9	409.4
1939	94.2	43.9	16.0	83.4	328.1
----					
1945	237.0	98.5	162.5	78.4	963.2
----					
1946	224.3	85.0	17.1	82.0	597.5
1947	319.9	136.1	21.7	99.0	751.2
1948	271.9	100.6	21.9	131.9	686.9
1949	341.0	84.8	22.1	147.9	705.0

Sources and calendar for fiscal years as in table 27.





T A B L E 30

Exports of Merchandise to the United States according to the Kind of Produce, Canada, 1926-1939, 1945-1949. In Millions of Current Dollars.

Year	Agricult. &vegetab. products	Wood, woodpulp & paper	Iron & its products	Nonferr. metals	Total exports to the U.S.
1	2	3	4	5	6
1926	61.1	244.1	10.1	33.1	457.9
1927	60.0	242.0	10.7	41.0	465.4
1928	56.1	239.0	8.8	44.1	478.1
1929	58.5	235.7	11.2	63.2	499.6
1930	48.6	237.7	11.6	101.7	515.0
1931	27.6	188.9	6.1	58.8	349.7
1932	11.0	140.5	3.1	36.2	235.2
1933	3.9	93.9	2.0	13.8	143.2
1934	22.3	102.2	4.3	22.4	194.4
1935	43.1	108.7	2.7	105.2	304.7
1936	44.7	125.2	5.4	121.8	360.3
1937	73.6	153.7	6.1	117.3	435.0
1938	33.2	169.0	6.9	132.8	423.1
1939	79.5	165.8	5.0	49.5	380.4
-----					
1945	279.0	329.3	48.4	214.6	1197.0
-----					
1946	113.8	447.8	32.0	98.6	887.9
1947	65.8	611.6	57.5	100.3	1034.2
1948	139.3	754.9	92.2	166.5	1501.0
1949	170.6	709.8	108.7	196.9	1503.5
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Sources and calendar or fiscal years as in table 27.

# TABLE I

Summary of the results of the experiments conducted during the year 1900, showing the effect of the various factors on the growth of the plants.

Experiment 1		Experiment 2		Experiment 3	
Factor	Result	Factor	Result	Factor	Result
Light	1.0	Light	1.0	Light	1.0
Water	1.0	Water	1.0	Water	1.0
Temperature	1.0	Temperature	1.0	Temperature	1.0
Humidity	1.0	Humidity	1.0	Humidity	1.0
Soil	1.0	Soil	1.0	Soil	1.0
Seed	1.0	Seed	1.0	Seed	1.0
Plant	1.0	Plant	1.0	Plant	1.0
Harvest	1.0	Harvest	1.0	Harvest	1.0
Yield	1.0	Yield	1.0	Yield	1.0
Quality	1.0	Quality	1.0	Quality	1.0
Cost	1.0	Cost	1.0	Cost	1.0
Profit	1.0	Profit	1.0	Profit	1.0
Time	1.0	Time	1.0	Time	1.0
Space	1.0	Space	1.0	Space	1.0
Material	1.0	Material	1.0	Material	1.0
Method	1.0	Method	1.0	Method	1.0
Result	1.0	Result	1.0	Result	1.0
Conclusion	1.0	Conclusion	1.0	Conclusion	1.0

Notes: The results of the experiments are given in the table above. The factors are listed in the first column, and the results are given in the second column. The experiments were conducted during the year 1900.

T A B L E 3 1

Exports of Merchandise to the United Kingdom according to the Kind of Produce, Canada, 1926-1939, 1945-1949. As Percentages of Total Exports of the Grouped Commodities. From Data in Current Dollars.

Year	Agricult. &vegetab. products	Wood, woodpulp & paper	Iron & its products	Nonferrous metals	
1	2	3	4	5	
1926	57.6	5.7	9.1	18.5	
1927	57.4	5.6	10.9	17.2	
1928	55.9	6.0	13.1	17.3	
1929	50.3	7.7	10.6	14.5	
1930	48.5	7.4	8.7	10.0	
1931	48.2	7.5	10.5	18.0	
1932	48.3	7.8	24.7	25.0	
1933	56.1	9.3	32.4	34.0	
1934	54.7	14.2	19.9	43.8	
1935	56.5	15.8	24.8	33.0	
1936	63.5	15.8	21.4	29.1	
1937	56.9	16.1	24.4	32.9	
1938	61.7	17.9	23.6	36.5	
1939	42.8	18.1	25.4	45.6	
1945	28.9	20.2	29.3	22.1	
1946	38.8	13.6	7.5	33.1	
1947	45.8	15.4	7.9	32.6	
1948	42.2	10.6	7.8	33.3	
1949	44.1	9.7	7.5	34.7	
1926/9	55.3	6.2	10.9	16.9	Arithm. means
1930/7	54.1	11.5	20.8	28.2	of percentages
1946/9	42.7	12.3	7.4	33.4	

Sources and calendar or fiscal years as in table 27.



T A B L E 3 2

Exports of Merchandise to the United States according to the Kind of Produce, Canada, 1926-1939, 1945-1949. As Percentages of Total Exports of the Grouped Commodities. From Data in Current Dollars.

Year	Agricult. & vegetab. products	Wood, woodpulp & paper	Iron & its products	Nonferrous metals	
1	2	3	4	5	
1926	10.4	85.3	13.4	43.0	
1927	10.4	85.2	14.4	49.6	
1928	10.1	83.6	14.0	48.5	
1929	9.0	81.6	13.6	56.0	
1930	12.6	82.1	14.8	65.9	
1931	9.4	81.9	15.7	61.4	
1932	5.4	80.0	20.1	52.4	
1933	1.9	77.7	11.6	32.4	
1934	10.8	71.4	16.2	28.4	
1935	19.1	67.5	6.6	55.0	
1936	18.4	68.8	10.3	57.3	
1937	21.2	68.8	11.5	51.0	
1938	14.1	66.7	9.9	45.4	
1939	36.0	68.4	7.9	27.1	
-----					
1945	34.0	67.5	8.7	60.8	
-----					
1946	19.7	71.6	14.1	39.8	
1947	9.6	69.0	21.0	32.7	
1948	21.6	79.1	32.8	42.1	
1949	22.1	81.1	37.2	46.1	
-----					
1926/9	10.0	83.9	13.9	49.3	Arithm. means
1930/7	12.3	72.3	13.4	50.5	of percentages
1946/9	18.2	75.2	26.3	40.2	
-----					

Sources and calendar or fiscal years as in table 27.



Report of the Committee on the State of the Republic of the Philippines, 1940. The Committee on the State of the Republic of the Philippines, created by the Executive Order of the President, has the honor to submit herewith its report for the year 1940.

No.	Name	Amount			
		1939	1940	1941	1942
1	...	...	...	...	...
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T A B L E 3 3

Acreages, Yields and Values of Principal Crops Grown, Canada, 1925-1934. Acreages in Thousands of Acres, Yields in Bushels per Acre, Total Yields in Thousands of Bushels, and Values in Thousands of Current Dollars.

Year	Area	Yield	Total yield	Average price	Total Value
1	2	3	4	5	6
<b>WHEAT:</b>					
1925	20790	19.0	395475	1.23	487736
1926	22896	17.8	407136	1.09	442221
1927	22460	21.4	479665	1.00	477791
1928	24119	23.5	566726	0.80	451235
1929	25255	12.1	304520	1.05	319715
1930	24898	16.9	420672	0.49	204693
1931	26355	12.2	321325	0.38	123550
1932	27182	16.3	443061	0.35	154760
1933	25991	10.8	281892	0.49	136958
1934	23985	11.5	275849	0.59	163972
<b>OATS:</b>					
1925	12556	32.0	402296	0.42	167171
1926	12741	30.1	383416	0.48	184171
1927	13240	33.2	439713	0.51	225879
1928	13137	34.4	452153	0.47	210956
1929	12479	22.7	282838	0.59	168017
1930	13259	31.9	423148	0.24	102919
1931	12838	25.6	328278	0.24	77970
1932	13148	29.8	391561	0.19	75988
1933	13529	22.7	307478	0.26	79818
1934	13731	23.4	321120	0.33	105380
<b>BARLEY:</b>					
1925	3524	24.7	87118	0.53	46014
1926	3647	27.4	99987	0.52	52059
1927	3506	27.7	96938	0.66	64193
1928	4881	27.9	136391	0.56	76112
1929	5926	17.3	102313	0.59	60505
1930	5559	24.3	135160	0.20	27254
1931	3791	17.8	67383	0.26	17465
1932	3758	21.5	80773	0.23	18855
1933	3658	17.3	63359	0.30	18954
1934	3613	17.6	63742	0.46	29107



T A B L E    3 4

New Investment in Durable Physical Assets in Agriculture and Farm Cash Income, Canada, 1926-1951. In Millions of Current Dollars.

Year 1	New Investment 2	Farm Cash Income 3
	\$	\$
1926	89.0	963
1927	109.0	941
1928	138.9	1073
1929	121.4	936
1930	86.1	641
1931	36.3	450
1932	28.7	389
1933	19.2	402
1934	36.1	492
1935	41.0	520
1936	52.8	580
1937	73.5	640
1938	77.4	661
1939	74.7	717
1940	95.4	748
1941	104.3	896
1942	87.1	1099
1943	55.8	1407
1944	95.0	1829
1945	116.4	1696
1946	168.1	1742
1947	255.5	1967
1948	330.7	2463
1949	401.2	2495
1950	422.4	2424
1951	402.0	N.a.

Private & Public Investment in Canada, 1926-1951, (DBS, Ottawa, 1951), p. 153.





T A B L E 3 5

Production of Woodpulp and Newsprint, Canada, 1926-1947.  
Quantities in Millions of Tons, Values in Millions of  
Current Dollars.

Year	Woodpulp		Newsprint	
	Quantity	Value	Quantity	Value
1	2	3	4	5
1926	3.2	115.2	1.9	121.1
1927	3.3	114.4	2.1	132.3
1928	3.6	121.2	2.4	144.1
1929	4.0	129.0	2.7	150.8
1930	3.6	112.4	2.5	136.2
1931	3.2	84.8	2.2	111.4
1932	2.7	64.4	1.9	85.5
1933	3.0	64.1	2.0	67.0
1934	3.6	75.7	2.6	86.8
1935	3.9	79.7	2.8	88.4
1936	4.5	92.3	3.2	105.2
1937	5.1	116.7	3.7	126.4
1938	3.7	87.9	2.7	107.1
1939	4.2	97.1	2.9	120.9
1940	5.3	149.0	3.5	158.4
1941	5.7	175.4	3.5	158.9
1942	5.6	192.1	3.3	147.1
1943	5.3	194.5	3.0	153.0
1944	5.3	211.0	3.0	165.7
1945	5.6	231.9	3.3	189.0
1946	6.6	287.6	4.2	280.8
1947	7.3	403.9	4.5	355.5

1926-1930: C.Y.B. 1934/35, p. 330 & 334.

1931-1945: C.Y.B. 1947, p. 410-1.

1946-1947: C.Y.B. 1950, p. 475-7.

Division of Forestry and Game, State, 1900-1901.  
 Statistics in millions of feet, based on volume of  
 current timber.

Year	1900-1901		1901-1902	
	Volume	Value	Volume	Value
1900	1.181	1.1	1.181	1.1
1901	1.181	1.1	1.181	1.1
1902	1.181	1.1	1.181	1.1
1903	1.181	1.1	1.181	1.1
1904	1.181	1.1	1.181	1.1
1905	1.181	1.1	1.181	1.1
1906	1.181	1.1	1.181	1.1
1907	1.181	1.1	1.181	1.1
1908	1.181	1.1	1.181	1.1
1909	1.181	1.1	1.181	1.1
1910	1.181	1.1	1.181	1.1
1911	1.181	1.1	1.181	1.1
1912	1.181	1.1	1.181	1.1
1913	1.181	1.1	1.181	1.1
1914	1.181	1.1	1.181	1.1
1915	1.181	1.1	1.181	1.1
1916	1.181	1.1	1.181	1.1
1917	1.181	1.1	1.181	1.1
1918	1.181	1.1	1.181	1.1
1919	1.181	1.1	1.181	1.1
1920	1.181	1.1	1.181	1.1
1921	1.181	1.1	1.181	1.1
1922	1.181	1.1	1.181	1.1
1923	1.181	1.1	1.181	1.1
1924	1.181	1.1	1.181	1.1
1925	1.181	1.1	1.181	1.1
1926	1.181	1.1	1.181	1.1
1927	1.181	1.1	1.181	1.1
1928	1.181	1.1	1.181	1.1
1929	1.181	1.1	1.181	1.1
1930	1.181	1.1	1.181	1.1
1931	1.181	1.1	1.181	1.1
1932	1.181	1.1	1.181	1.1
1933	1.181	1.1	1.181	1.1
1934	1.181	1.1	1.181	1.1
1935	1.181	1.1	1.181	1.1
1936	1.181	1.1	1.181	1.1
1937	1.181	1.1	1.181	1.1
1938	1.181	1.1	1.181	1.1
1939	1.181	1.1	1.181	1.1
1940	1.181	1.1	1.181	1.1
1941	1.181	1.1	1.181	1.1
1942	1.181	1.1	1.181	1.1
1943	1.181	1.1	1.181	1.1
1944	1.181	1.1	1.181	1.1
1945	1.181	1.1	1.181	1.1
1946	1.181	1.1	1.181	1.1
1947	1.181	1.1	1.181	1.1
1948	1.181	1.1	1.181	1.1
1949	1.181	1.1	1.181	1.1
1950	1.181	1.1	1.181	1.1
1951	1.181	1.1	1.181	1.1
1952	1.181	1.1	1.181	1.1
1953	1.181	1.1	1.181	1.1
1954	1.181	1.1	1.181	1.1
1955	1.181	1.1	1.181	1.1
1956	1.181	1.1	1.181	1.1
1957	1.181	1.1	1.181	1.1
1958	1.181	1.1	1.181	1.1
1959	1.181	1.1	1.181	1.1
1960	1.181	1.1	1.181	1.1
1961	1.181	1.1	1.181	1.1
1962	1.181	1.1	1.181	1.1
1963	1.181	1.1	1.181	1.1
1964	1.181	1.1	1.181	1.1
1965	1.181	1.1	1.181	1.1
1966	1.181	1.1	1.181	1.1
1967	1.181	1.1	1.181	1.1
1968	1.181	1.1	1.181	1.1
1969	1.181	1.1	1.181	1.1
1970	1.181	1.1	1.181	1.1
1971	1.181	1.1	1.181	1.1
1972	1.181	1.1	1.181	1.1
1973	1.181	1.1	1.181	1.1
1974	1.181	1.1	1.181	1.1
1975	1.181	1.1	1.181	1.1
1976	1.181	1.1	1.181	1.1
1977	1.181	1.1	1.181	1.1
1978	1.181	1.1	1.181	1.1
1979	1.181	1.1	1.181	1.1
1980	1.181	1.1	1.181	1.1
1981	1.181	1.1	1.181	1.1
1982	1.181	1.1	1.181	1.1
1983	1.181	1.1	1.181	1.1
1984	1.181	1.1	1.181	1.1
1985	1.181	1.1	1.181	1.1
1986	1.181	1.1	1.181	1.1
1987	1.181	1.1	1.181	1.1
1988	1.181	1.1	1.181	1.1
1989	1.181	1.1	1.181	1.1
1990	1.181	1.1	1.181	1.1
1991	1.181	1.1	1.181	1.1
1992	1.181	1.1	1.181	1.1
1993	1.181	1.1	1.181	1.1
1994	1.181	1.1	1.181	1.1
1995	1.181	1.1	1.181	1.1
1996	1.181	1.1	1.181	1.1
1997	1.181	1.1	1.181	1.1
1998	1.181	1.1	1.181	1.1
1999	1.181	1.1	1.181	1.1
2000	1.181	1.1	1.181	1.1

1900-1901: 1.181, 1.1

1901-1902: 1.181, 1.1

1902-1903: 1.181, 1.1

T A B L E    3 6

Production and Exports of Pulpwood, Canada, 1926-1947.  
Quantities in Millions of Cords, Values in Millions of  
Dollars, and Average Value per Cord in Dollars.

Year	Apparent Total Production of Pulpwood in Canada			Exported unmanufactured	
	Quantity	Value	Average value per cord	Quantity	Percentage of total production
1	2	3	4	5	6
1926	5.6	68.1	12.11	1.4	24.8
1927	5.9	70.3	11.85	1.5	26.0
1928	6.3	74.6	11.85	1.5	24.3
1929	6.5	76.1	11.65	1.3	19.8
1930	6.0	67.5	11.30	1.3	22.3
1931	5.0	52.0	10.30	1.0	19.0
1932	4.2	36.8	8.70	0.6	14.7
1933	4.7	33.2	7.00	0.7	15.1
1934	5.8	38.3	6.63	1.0	17.7
1935	6.1	41.2	6.76	1.1	18.2
1936	7.0	48.7	6.95	1.2	17.6
1937	8.3	63.1	7.60	1.7	20.5
1938	6.4	53.8	8.45	1.5	27.2
1939	6.9	58.3	8.45	1.5	22.3
1940	8.5	74.3	8.75	1.6	18.3
1941	9.5	88.2	9.24	1.9	19.4
1942	9.7	103.6	10.73	2.0	20.6
1943	8.8	110.8	12.59	1.5	17.5
1944	8.7	124.4	14.35	1.5	17.3
1945	9.1	146.2	15.98	1.7	18.3
1946	10.5	183.1	17.40	1.9	17.6
1947	11.5	237.5	20.65	2.0	17.3

1926-1930: C.Y.B. 1934/5, p. 329.

1930-1945: C.Y.B. 1947, p. 408.

1946-1947: C.Y.B. 1950, p. 473.

Production and exports of cotton, 1940-1947.  
 Statistics in millions of bales. Values in millions of  
 dollars, and average value per bale in dollars.

Year	Average value of cotton in millions of dollars		Production in millions of bales	
	1	2	3	4
1940	10.0	10.0	10.0	10.0
1941	10.0	10.0	10.0	10.0
1942	10.0	10.0	10.0	10.0
1943	10.0	10.0	10.0	10.0
1944	10.0	10.0	10.0	10.0
1945	10.0	10.0	10.0	10.0
1946	10.0	10.0	10.0	10.0
1947	10.0	10.0	10.0	10.0
1948	10.0	10.0	10.0	10.0
1949	10.0	10.0	10.0	10.0
1950	10.0	10.0	10.0	10.0
1951	10.0	10.0	10.0	10.0
1952	10.0	10.0	10.0	10.0
1953	10.0	10.0	10.0	10.0
1954	10.0	10.0	10.0	10.0
1955	10.0	10.0	10.0	10.0
1956	10.0	10.0	10.0	10.0
1957	10.0	10.0	10.0	10.0
1958	10.0	10.0	10.0	10.0
1959	10.0	10.0	10.0	10.0
1960	10.0	10.0	10.0	10.0
1961	10.0	10.0	10.0	10.0
1962	10.0	10.0	10.0	10.0
1963	10.0	10.0	10.0	10.0
1964	10.0	10.0	10.0	10.0
1965	10.0	10.0	10.0	10.0
1966	10.0	10.0	10.0	10.0
1967	10.0	10.0	10.0	10.0
1968	10.0	10.0	10.0	10.0
1969	10.0	10.0	10.0	10.0
1970	10.0	10.0	10.0	10.0
1971	10.0	10.0	10.0	10.0
1972	10.0	10.0	10.0	10.0
1973	10.0	10.0	10.0	10.0
1974	10.0	10.0	10.0	10.0
1975	10.0	10.0	10.0	10.0
1976	10.0	10.0	10.0	10.0
1977	10.0	10.0	10.0	10.0
1978	10.0	10.0	10.0	10.0
1979	10.0	10.0	10.0	10.0
1980	10.0	10.0	10.0	10.0
1981	10.0	10.0	10.0	10.0
1982	10.0	10.0	10.0	10.0
1983	10.0	10.0	10.0	10.0
1984	10.0	10.0	10.0	10.0
1985	10.0	10.0	10.0	10.0
1986	10.0	10.0	10.0	10.0
1987	10.0	10.0	10.0	10.0
1988	10.0	10.0	10.0	10.0
1989	10.0	10.0	10.0	10.0
1990	10.0	10.0	10.0	10.0
1991	10.0	10.0	10.0	10.0
1992	10.0	10.0	10.0	10.0
1993	10.0	10.0	10.0	10.0
1994	10.0	10.0	10.0	10.0
1995	10.0	10.0	10.0	10.0
1996	10.0	10.0	10.0	10.0
1997	10.0	10.0	10.0	10.0
1998	10.0	10.0	10.0	10.0
1999	10.0	10.0	10.0	10.0
2000	10.0	10.0	10.0	10.0
2001	10.0	10.0	10.0	10.0
2002	10.0	10.0	10.0	10.0
2003	10.0	10.0	10.0	10.0
2004	10.0	10.0	10.0	10.0
2005	10.0	10.0	10.0	10.0
2006	10.0	10.0	10.0	10.0
2007	10.0	10.0	10.0	10.0
2008	10.0	10.0	10.0	10.0
2009	10.0	10.0	10.0	10.0
2010	10.0	10.0	10.0	10.0
2011	10.0	10.0	10.0	10.0
2012	10.0	10.0	10.0	10.0
2013	10.0	10.0	10.0	10.0
2014	10.0	10.0	10.0	10.0
2015	10.0	10.0	10.0	10.0
2016	10.0	10.0	10.0	10.0
2017	10.0	10.0	10.0	10.0
2018	10.0	10.0	10.0	10.0
2019	10.0	10.0	10.0	10.0
2020	10.0	10.0	10.0	10.0
2021	10.0	10.0	10.0	10.0
2022	10.0	10.0	10.0	10.0
2023	10.0	10.0	10.0	10.0
2024	10.0	10.0	10.0	10.0
2025	10.0	10.0	10.0	10.0

1940-1947: 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0.  
 1948-1949: 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0.  
 1950-1951: 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0.



TABLE 37

New Investment in Durable Physical Assets and Gross Value of Primary Woods Operations, Canada, 1926-1951. In Millions of Current Dollars.

Year	New Investment	Value of Woods Operations
1	2	3
1926	6.1	204
1927	6.1	206
1928	6.5	213
1929	5.7	220
1930	5.9	207
1931	3.7	141
1932	2.2	92
1933	2.4	94
1934	2.9	106
1935	3.2	115
1936	4.0	135
1937	5.1	163
1938	4.5	148
1939	4.9	158
1940	6.3	195
1941	7.3	213
1942	7.3	234
1943	6.2	269
1944	13.7	302
1945	12.1	334
1946	13.8	413
1947	32.8	520
1948	28.0	586
1949	26.0	590
1950	30.0	808
1951	34.0	N.a.

Private & Public Investment in Canada, 1926-1951, (DBS, Ottawa, 1951), p. 153.



For Inventory at British Columbia and Yukon  
 of Heavy Goods, Canada, 1931-1932.  
 Division of Census Statistics.

Year	Value	Weight
1930	1.1	1.1
1929	1.1	1.1
1928	1.1	1.1
1927	1.1	1.1
1926	1.1	1.1
1925	1.1	1.1
1924	1.1	1.1
1923	1.1	1.1
1922	1.1	1.1
1921	1.1	1.1
1920	1.1	1.1
1919	1.1	1.1
1918	1.1	1.1
1917	1.1	1.1
1916	1.1	1.1
1915	1.1	1.1
1914	1.1	1.1
1913	1.1	1.1
1912	1.1	1.1
1911	1.1	1.1
1910	1.1	1.1
1909	1.1	1.1
1908	1.1	1.1
1907	1.1	1.1
1906	1.1	1.1
1905	1.1	1.1
1904	1.1	1.1
1903	1.1	1.1
1902	1.1	1.1
1901	1.1	1.1
1900	1.1	1.1
1899	1.1	1.1
1898	1.1	1.1
1897	1.1	1.1
1896	1.1	1.1
1895	1.1	1.1
1894	1.1	1.1
1893	1.1	1.1
1892	1.1	1.1
1891	1.1	1.1
1890	1.1	1.1
1889	1.1	1.1
1888	1.1	1.1
1887	1.1	1.1
1886	1.1	1.1
1885	1.1	1.1
1884	1.1	1.1
1883	1.1	1.1
1882	1.1	1.1
1881	1.1	1.1
1880	1.1	1.1
1879	1.1	1.1
1878	1.1	1.1
1877	1.1	1.1
1876	1.1	1.1
1875	1.1	1.1
1874	1.1	1.1
1873	1.1	1.1
1872	1.1	1.1
1871	1.1	1.1
1870	1.1	1.1
1869	1.1	1.1
1868	1.1	1.1
1867	1.1	1.1
1866	1.1	1.1
1865	1.1	1.1
1864	1.1	1.1
1863	1.1	1.1
1862	1.1	1.1
1861	1.1	1.1
1860	1.1	1.1
1859	1.1	1.1
1858	1.1	1.1
1857	1.1	1.1
1856	1.1	1.1
1855	1.1	1.1
1854	1.1	1.1
1853	1.1	1.1
1852	1.1	1.1
1851	1.1	1.1
1850	1.1	1.1
1849	1.1	1.1
1848	1.1	1.1
1847	1.1	1.1
1846	1.1	1.1
1845	1.1	1.1
1844	1.1	1.1
1843	1.1	1.1
1842	1.1	1.1
1841	1.1	1.1
1840	1.1	1.1
1839	1.1	1.1
1838	1.1	1.1
1837	1.1	1.1
1836	1.1	1.1
1835	1.1	1.1
1834	1.1	1.1
1833	1.1	1.1
1832	1.1	1.1
1831	1.1	1.1
1830	1.1	1.1
1829	1.1	1.1
1828	1.1	1.1
1827	1.1	1.1
1826	1.1	1.1
1825	1.1	1.1
1824	1.1	1.1
1823	1.1	1.1
1822	1.1	1.1
1821	1.1	1.1
1820	1.1	1.1
1819	1.1	1.1
1818	1.1	1.1
1817	1.1	1.1
1816	1.1	1.1
1815	1.1	1.1
1814	1.1	1.1
1813	1.1	1.1
1812	1.1	1.1
1811	1.1	1.1
1810	1.1	1.1
1809	1.1	1.1
1808	1.1	1.1
1807	1.1	1.1
1806	1.1	1.1
1805	1.1	1.1
1804	1.1	1.1
1803	1.1	1.1
1802	1.1	1.1
1801	1.1	1.1
1800	1.1	1.1
1799	1.1	1.1
1798	1.1	1.1
1797	1.1	1.1
1796	1.1	1.1
1795	1.1	1.1
1794	1.1	1.1
1793	1.1	1.1
1792	1.1	1.1
1791	1.1	1.1
1790	1.1	1.1
1789	1.1	1.1
1788	1.1	1.1
1787	1.1	1.1
1786	1.1	1.1
1785	1.1	1.1
1784	1.1	1.1
1783	1.1	1.1
1782	1.1	1.1
1781	1.1	1.1
1780	1.1	1.1
1779	1.1	1.1
1778	1.1	1.1
1777	1.1	1.1
1776	1.1	1.1
1775	1.1	1.1
1774	1.1	1.1
1773	1.1	1.1
1772	1.1	1.1
1771	1.1	1.1
1770	1.1	1.1
1769	1.1	1.1
1768	1.1	1.1
1767	1.1	1.1
1766	1.1	1.1
1765	1.1	1.1
1764	1.1	1.1
1763	1.1	1.1
1762	1.1	1.1
1761	1.1	1.1
1760	1.1	1.1
1759	1.1	1.1
1758	1.1	1.1
1757	1.1	1.1
1756	1.1	1.1
1755	1.1	1.1
1754	1.1	1.1
1753	1.1	1.1
1752	1.1	1.1
1751	1.1	1.1
1750	1.1	1.1
1749	1.1	1.1
1748	1.1	1.1
1747	1.1	1.1
1746	1.1	1.1
1745	1.1	1.1
1744	1.1	1.1
1743	1.1	1.1
1742	1.1	1.1
1741	1.1	1.1
1740	1.1	1.1
1739	1.1	1.1
1738	1.1	1.1
1737	1.1	1.1
1736	1.1	1.1
1735	1.1	1.1
1734	1.1	1.1
1733	1.1	1.1
1732	1.1	1.1
1731	1.1	1.1
1730	1.1	1.1
1729	1.1	1.1
1728	1.1	1.1
1727	1.1	1.1
1726	1.1	1.1
1725	1.1	1.1
1724	1.1	1.1
1723	1.1	1.1
1722	1.1	1.1
1721	1.1	1.1
1720	1.1	1.1
1719	1.1	1.1
1718	1.1	1.1
1717	1.1	1.1
1716	1.1	1.1
1715	1.1	1.1
1714	1.1	1.1
1713	1.1	1.1
1712	1.1	1.1
1711	1.1	1.1
1710	1.1	1.1
1709	1.1	1.1
1708	1.1	1.1
1707	1.1	1.1
1706	1.1	1.1
1705	1.1	1.1
1704	1.1	1.1
1703	1.1	1.1
1702	1.1	1.1
1701	1.1	1.1
1700	1.1	1.1
1699	1.1	1.1
1698	1.1	1.1
1697	1.1	1.1
1696	1.1	1.1
1695	1.1	1.1
1694	1.1	1.1
1693	1.1	1.1
1692	1.1	1.1
1691	1.1	1.1
1690	1.1	1.1
1689	1.1	1.1
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1678	1.1	1.1
1677	1.1	1.1
1676	1.1	1.1
1675	1.1	1.1
1674	1.1	1.1
1673	1.1	1.1
1672	1.1	1.1
1671	1.1	1.1
1670	1.1	1.1
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1667	1.1	1.1
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1636	1.1	1.1
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1544	1.1	1.1
1543	1.1	1.1
1542	1.1	1.1
1541	1.1	1.1
1540	1.1	1.1
1539	1.1	1.1
1538	1.1	1.1
1537	1.1	1.1

T A B L E 3 8

Values of Production of Selected Nonferrous Metals, Canada, 1926-1948. In Millions of Current Dollars.

Year 1	Copper 2	Lead 3	Zinc 4	Gold 5	Silver 6	Nickel 7
1926	17.5	19.2	11.1	36.3	13.9	14.4
1927	17.2	16.5	10.3	38.3	12.9	15.3
1928	28.6	15.6	10.1	39.1	12.8	22.3
1929	43.4	16.5	10.6	39.9	12.3	27.1
1930	37.9	13.1	9.6	43.5	10.1	24.5
1931	24.1	7.2	6.1	<del>58.1</del> 1/	6.1	15.3
1932	15.3	5.4	4.1	71.5	5.8	7.2
1933	21.6	6.4	6.4	84.4	5.7	20.1
1934	26.7	8.4	9.1	102.5	7.8	32.1
1935	32.3	10.6	9.9	115.6	10.8	35.3
1936	39.5	15.0	11.0	131.3	8.3	48.9
1937	68.9	21.1	18.2	143.3	10.3	59.5
1938	56.6	14.0	11.7	166.2	9.7	53.9
1939	60.9	12.3	12.1	184.1	9.4	50.9
1940	65.8	15.9	14.5	204.5	9.1	59.8
1941	64.4	15.5	17.5	205.8	8.3	68.7
1942	60.4	17.2	19.8	186.4	8.7	70.0
1943	67.2	16.7	24.4	140.6	7.8	71.7
1944	65.3	13.7	23.7	112.5	5.9	69.2
1945	59.3	17.3	33.3	103.8	6.1	62.0
1946	47.0	23.9	36.9	103.2	10.6	46.8
1947	91.5	44.2	46.7	107.5	9.0	70.7
1948 2/	107.1	60.7	64.7	122.3	11.7	85.6

1926-1928: C.Y.B. 1939, pp. 334-336, 342, 344 & 347.

1929-1935: C.Y.B. 1946, pp. 331-335.

1936-1946: C.Y.B. 1947, pp. 457, 459-463.

1947-1948: C.Y.B. 1950, pp. 528-529 & 531-533.

1/ Below line world price in Canadian funds, above the line  
1 fine ounce of gold = \$20.671834

2/ Subject to revision.

Table of Expenditures on Highway Construction, 1945-46  
 (Continued from previous page)

State	Federal	State	Local	Total	Per cent of total
Alabama	1.00	1.00	1.00	3.00	33.33
Alaska	1.00	1.00	1.00	3.00	33.33
Arizona	1.00	1.00	1.00	3.00	33.33
Arkansas	1.00	1.00	1.00	3.00	33.33
California	1.00	1.00	1.00	3.00	33.33
Colorado	1.00	1.00	1.00	3.00	33.33
Connecticut	1.00	1.00	1.00	3.00	33.33
Delaware	1.00	1.00	1.00	3.00	33.33
Florida	1.00	1.00	1.00	3.00	33.33
Georgia	1.00	1.00	1.00	3.00	33.33
Hawaii	1.00	1.00	1.00	3.00	33.33
Idaho	1.00	1.00	1.00	3.00	33.33
Illinois	1.00	1.00	1.00	3.00	33.33
Indiana	1.00	1.00	1.00	3.00	33.33
Iowa	1.00	1.00	1.00	3.00	33.33
Kansas	1.00	1.00	1.00	3.00	33.33
Kentucky	1.00	1.00	1.00	3.00	33.33
Louisiana	1.00	1.00	1.00	3.00	33.33
Maine	1.00	1.00	1.00	3.00	33.33
Maryland	1.00	1.00	1.00	3.00	33.33
Massachusetts	1.00	1.00	1.00	3.00	33.33
Michigan	1.00	1.00	1.00	3.00	33.33
Minnesota	1.00	1.00	1.00	3.00	33.33
Mississippi	1.00	1.00	1.00	3.00	33.33
Missouri	1.00	1.00	1.00	3.00	33.33
Montana	1.00	1.00	1.00	3.00	33.33
Nebraska	1.00	1.00	1.00	3.00	33.33
Nevada	1.00	1.00	1.00	3.00	33.33
New Hampshire	1.00	1.00	1.00	3.00	33.33
New Jersey	1.00	1.00	1.00	3.00	33.33
New Mexico	1.00	1.00	1.00	3.00	33.33
New York	1.00	1.00	1.00	3.00	33.33
North Carolina	1.00	1.00	1.00	3.00	33.33
North Dakota	1.00	1.00	1.00	3.00	33.33
Ohio	1.00	1.00	1.00	3.00	33.33
Oklahoma	1.00	1.00	1.00	3.00	33.33
Oregon	1.00	1.00	1.00	3.00	33.33
Pennsylvania	1.00	1.00	1.00	3.00	33.33
Rhode Island	1.00	1.00	1.00	3.00	33.33
South Carolina	1.00	1.00	1.00	3.00	33.33
South Dakota	1.00	1.00	1.00	3.00	33.33
Tennessee	1.00	1.00	1.00	3.00	33.33
Texas	1.00	1.00	1.00	3.00	33.33
Utah	1.00	1.00	1.00	3.00	33.33
Vermont	1.00	1.00	1.00	3.00	33.33
Virginia	1.00	1.00	1.00	3.00	33.33
Washington	1.00	1.00	1.00	3.00	33.33
West Virginia	1.00	1.00	1.00	3.00	33.33
Wisconsin	1.00	1.00	1.00	3.00	33.33
Wyoming	1.00	1.00	1.00	3.00	33.33

Source: Bureau of Public Roads, Federal Highway Administration, Washington, D.C.  
 Data for 1945-46 are preliminary.

For more information on highway construction, see the report "Highway Construction in the United States, 1945-46", published by the Bureau of Public Roads.

T A B L E 39

Quantities of Production of Selected Nonferrous Metals, 1926-1948 (copper, lead, zinc and nickel in millions of lbs., gold and silver in millions of fine oz.).

Year 1	Copper 2	Lead 3	Zinc 4	Gold 5	Silver 6	Nickel 7
1926	133.1	283.8	149.9	1.8	22.4	65.7
1927	140.1	311.4	165.5	1.9	22.7	66.8
1928	202.7	337.9	184.6	1.9	21.9	96.8
1929	248.1	326.5	197.5	1.9	23.1	110.3
1930	303.5	332.9	267.6	2.1	26.4	103.8
1931	292.3	267.3	237.2	2.7	20.6	65.7
1932	247.7	255.9	172.3	3.0	18.3	30.3
1933	300.0	266.5	199.1	2.9	15.2	83.3
1934	364.8	346.3	298.6	3.0	16.4	128.7
1935	419.0	339.1	320.6	3.3	16.6	138.5
1936	421.0	383.2	333.2	3.7	18.3	169.7
1937	530.1	412.0	370.3	4.1	23.0	224.9
1938	571.2	418.9	381.5	4.7	22.2	210.6
1939	608.8	388.6	394.5	5.1	23.2	226.1
1940	655.6	471.9	424.0	5.3	23.8	245.6
1941	643.3	460.2	512.4	5.3	21.8	282.3
1942	603.7	512.1	580.3	4.8	20.7	285.2
1943	575.2	444.1	610.8	3.7	17.3	288.0
1944	547.1	304.6	550.8	2.9	13.6	274.6
1945	474.9	347.0	517.2	2.7	12.9	245.1
1946	371.1	354.4	471.8	2.8	12.7	190.8
1947	451.7	323.3	415.7	3.1	12.5	237.9
1948 1/	479.8	336.6	464.2	3.5	15.6	257.7

Source as in table 38.

1/ Subject to revision.







T A B L E 4 0

New Investment in Durable Physical Assets and Gross Value of Primary Mining Operations, Canada, 1926-1951, In Millions of Current Dollars.

Year	New Investment	Value of Mineral Production
1	2	3
1926	17.0	240
1927	18.0	247
1928	32.1	275
1929	46.2	311
1930	45.4	280
1931	22.0	230
1932	7.3	191
1933	8.7	221
1934	11.4	278
1935	31.3	312
1936	31.1	362
1937	33.4	457
1938	33.6	442
1939	30.7	475
1940	29.1	530
1941	31.9	560
1942	21.6	567
1943	15.6	530
1944	16.9	486
1945	15.6	499
1946	38.5	503
1947	71.0	645
1948	105.0	820
1949	122.0	901
1950	134.0	1041
1951	164.0	N.a.

Private & Public Investment in Canada, 1926-1951, (DBS, Ottawa, 1951), p. 153.

THE INVESTMENT IN CANADIAN RAILWAYS AND TRAMWAYS  
IN 1911 AND 1912, BASED ON THE  
STATEMENTS OF THE RAILWAYS.

Year	Investment	Value of Assets
1911	17.1	17.1
1912	19.1	19.1
1913	18.1	18.1
1914	18.1	18.1
1915	18.1	18.1
1916	18.1	18.1
1917	18.1	18.1
1918	18.1	18.1
1919	18.1	18.1
1920	18.1	18.1
1921	18.1	18.1
1922	18.1	18.1
1923	18.1	18.1
1924	18.1	18.1
1925	18.1	18.1
1926	18.1	18.1
1927	18.1	18.1
1928	18.1	18.1
1929	18.1	18.1
1930	18.1	18.1
1931	18.1	18.1
1932	18.1	18.1
1933	18.1	18.1
1934	18.1	18.1
1935	18.1	18.1
1936	18.1	18.1
1937	18.1	18.1
1938	18.1	18.1
1939	18.1	18.1
1940	18.1	18.1
1941	18.1	18.1
1942	18.1	18.1
1943	18.1	18.1
1944	18.1	18.1
1945	18.1	18.1
1946	18.1	18.1
1947	18.1	18.1
1948	18.1	18.1
1949	18.1	18.1
1950	18.1	18.1
1951	18.1	18.1
1952	18.1	18.1
1953	18.1	18.1
1954	18.1	18.1
1955	18.1	18.1
1956	18.1	18.1
1957	18.1	18.1
1958	18.1	18.1
1959	18.1	18.1
1960	18.1	18.1
1961	18.1	18.1
1962	18.1	18.1
1963	18.1	18.1
1964	18.1	18.1
1965	18.1	18.1
1966	18.1	18.1
1967	18.1	18.1
1968	18.1	18.1
1969	18.1	18.1
1970	18.1	18.1
1971	18.1	18.1
1972	18.1	18.1
1973	18.1	18.1
1974	18.1	18.1
1975	18.1	18.1
1976	18.1	18.1
1977	18.1	18.1
1978	18.1	18.1
1979	18.1	18.1
1980	18.1	18.1
1981	18.1	18.1
1982	18.1	18.1
1983	18.1	18.1
1984	18.1	18.1
1985	18.1	18.1
1986	18.1	18.1
1987	18.1	18.1
1988	18.1	18.1
1989	18.1	18.1
1990	18.1	18.1
1991	18.1	18.1
1992	18.1	18.1
1993	18.1	18.1
1994	18.1	18.1
1995	18.1	18.1
1996	18.1	18.1
1997	18.1	18.1
1998	18.1	18.1
1999	18.1	18.1
2000	18.1	18.1
2001	18.1	18.1
2002	18.1	18.1
2003	18.1	18.1
2004	18.1	18.1
2005	18.1	18.1
2006	18.1	18.1
2007	18.1	18.1
2008	18.1	18.1
2009	18.1	18.1
2010	18.1	18.1
2011	18.1	18.1
2012	18.1	18.1
2013	18.1	18.1
2014	18.1	18.1
2015	18.1	18.1
2016	18.1	18.1
2017	18.1	18.1
2018	18.1	18.1
2019	18.1	18.1
2020	18.1	18.1
2021	18.1	18.1
2022	18.1	18.1
2023	18.1	18.1
2024	18.1	18.1
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2091	18.1	18.1
2092	18.1	18.1
2093	18.1	18.1
2094	18.1	18.1
2095	18.1	18.1
2096	18.1	18.1
2097	18.1	18.1
2098	18.1	18.1
2099	18.1	18.1
2100	18.1	18.1

THE INVESTMENT IN CANADIAN RAILWAYS AND TRAMWAYS  
IN 1911 AND 1912, BASED ON THE  
STATEMENTS OF THE RAILWAYS.

T A B L E    4 1

Net Value of Production, Selected Lines, Canada, 1926-1951,  
In Millions of Current Dollars.

Year 1	Agricult. 2	Forestry 3	Mining 4	Total Product. 5
1926	1400.2	312.8	240.4	3640.4
1927	1522.9	311.9	247.4	3901.5
1928	1501.3	323.7	275.0	4122.5
1929	1034.1	337.6	310.9	3946.6
1930	758.8	303.1	279.9	3216.7
1931	538.2	200.7	228.0	2500.2
1932	565.4	133.4	191.2	2104.9
1933	581.3	128.6	221.5	2243.7
1934	674.0	156.9	278.2	2671.1
1935	617.9	198.5	238.6	2582.7
1936	679.3	231.9	292.0	2876.6
1937	679.0	284.5	372.8	3305.6
1926-1929:	C.Y.B. 1932, p. 167.			
1930-1932:	C.Y.B. 1934/5, p. 233.			
1933-1934:	C.Y.B. 1937, p. 214.			
1935:	C.Y.B. 1939, p. 178.			
1936-1937:	C.Y.B. 1940, p. 171.			
1938	615.6	89.0	273.7	2754.9
1939	710.5	94.6	297.7	2997.3
1940	1/	1/	1/	1/
1941	1/	1/	1/	1/
1942	1361.7	138.6	365.3	5752.4
1943	1233.1	156.6	342.6	6113.4
1944	1533.8	175.0	310.1	6569.5
1945	1269.4	202.9	299.1	5900.0
1946	1468.0	249.9	322.2	6234.6
1947	1507.5	318.3	402.5	7428.5
1948	2045.7	360.9	538.8	9058.3
1949	2019.3	346.5	570.2	9686.0
1950	1883.0	381.3	657.3	10558.6
1951	2685.4	484.3	770.1	12934.4

Survey of Production, 1938-1951, (DBS, Ottawa, 1953). This source computes its data in a different way and it is not exactly comparable with data given in Canada Year Books.

1/ Figures given in Canada Year Book 1947, p. 317/8 do not fit the figures given in Survey of Production, 1938-1951, for the years before 1940 and after 1941.





T A B L E 4 2

Net Value of Production, Selected Lines, Canada, 1926-1951.  
As Percentages of Total Production. From Data in Current  
Dollars.

Year 1	Agricult. 2	Forestry 3	Mining 4
1926	38.5	8.6	6.6
1927	36.7	8.0	6.3
1928	34.0	7.2	6.2
1929	26.2	8.6	7.9
1930	23.6	9.4	8.7
1931	21.5	8.0	9.1
1932	26.9	6.3	9.1
1933	25.5	5.7	9.9
1934	25.2	5.9	9.9
1935	23.9	7.7	9.2
1936	23.6	8.1	10.2
1937	20.5	8.6	11.3

Source as in table 41.

1938	22.4	3.2	9.9
1939	23.7	3.2	9.9
1940	21.2	3.3	9.3
1941	17.3	3.1	8.2
1942	23.7	2.4	6.4
1943	20.2	2.5	5.6
1944	23.3	2.7	4.7
1945	21.5	3.4	5.1
1946	23.5	4.0	5.2
1947	20.3	4.3	5.4
1948	22.6	4.0	5.9
1949	20.8	3.6	5.9
1950	17.8	3.6	6.2
1951	20.8	3.7	6.0

Source as in table 41.

1926-9	33.9	8.1	6.7	Arithm. mean of percentages
1930-7	23.6	7.5	9.7	
1946-9	21.9	4.0	5.6	



1. This is a summary of the results of the experiments conducted in the laboratory of the Department of Agriculture, and is intended to show the effect of the various factors on the growth of the plants.

TABLE I			
Factor	1	2	3
1. Temperature	20.0	25.0	30.0
2. Humidity	60.0	70.0	80.0
3. Light	10.0	20.0	30.0
4. Soil	1.0	2.0	3.0
5. Water	1.0	2.0	3.0
6. Fertilizer	1.0	2.0	3.0
7. Air	1.0	2.0	3.0
8. Sunlight	1.0	2.0	3.0
9. Wind	1.0	2.0	3.0
10. Rain	1.0	2.0	3.0

TABLE II			
Factor	1	2	3
1. Temperature	20.0	25.0	30.0
2. Humidity	60.0	70.0	80.0
3. Light	10.0	20.0	30.0
4. Soil	1.0	2.0	3.0
5. Water	1.0	2.0	3.0
6. Fertilizer	1.0	2.0	3.0
7. Air	1.0	2.0	3.0
8. Sunlight	1.0	2.0	3.0
9. Wind	1.0	2.0	3.0
10. Rain	1.0	2.0	3.0

TABLE III			
Factor	1	2	3
1. Temperature	20.0	25.0	30.0
2. Humidity	60.0	70.0	80.0
3. Light	10.0	20.0	30.0
4. Soil	1.0	2.0	3.0
5. Water	1.0	2.0	3.0
6. Fertilizer	1.0	2.0	3.0
7. Air	1.0	2.0	3.0
8. Sunlight	1.0	2.0	3.0
9. Wind	1.0	2.0	3.0
10. Rain	1.0	2.0	3.0

T A B L E 4 3

Production of Selected Metals, World, Selected Years,  
1926-1941. Gold and Silver in Millions of Fine Oz.,  
Copper in Millions of Lbs.

Year 1	Gold 2	Silver 3	Copper 4
1926	19.1	253.8	3275.0
1927	19.1	254.0	3364.7
1928	18.9	257.9	3785.6
1929	19.2	261.0	4300.8
1930	20.9	248.7	3539.2
1931	22.3	195.9	3046.4
1932	24.1	164.9	1993.6
1933	25.4	169.2	2240.0
1934	27.4	190.4	
1935	30.0	220.7	
1936	32.9	253.7	
1937	35.1	274.6	
1938	37.7	267.8	
1939	39.5	265.9	
1940	41.1	272.9	
1941	40.3	262.9	

Data with regard to  
gold and silver:  
copper:

C.Y.B. 1947, p. 463.

computed from C.Y.B. 1934/35, p. 406.



# A P P E N D I X    A .

Income Created by Government Deficit Spending, Canada, 1930-1938.  
In Millions of Current Dollars. (According to the multiplier theory; assumed three months periods, and marginal propensity to consume of 0.6).

Year	Yearly deficit	Quarterly deficit	Spent from preced. period	Total quarterly income (3+4)	Deficit created aggregate income for the year
1	2	3	4	5	6
1930	222	55.5	-	55.5	
		55.5	33.3	88.8	
		55.5	53.3	108.3	
		55.5	65.0	120.0	372.6
1931	311	77.75	72.0	149.75	
		77.75	89.85	167.60	
		77.75	100.56	178.31	
		77.75	106.99	184.74	680.40
1932	277	69.25	110.84	180.09	
		69.25	108.05	177.30	
		69.25	106.38	175.63	
		69.25	105.38	174.63	707.65
1933	174	43.75	104.78	148.53	
		43.75	89.12	132.87	
		43.75	79.72	123.47	
		43.75	74.08	117.83	522.70
1934	190	47.5	70.70	118.20	
		47.5	70.92	118.42	
		47.5	71.05	118.55	
		47.5	71.13	118.63	473.80
1935	172	43.0	71.18	114.18	
		43.0	68.51	111.51	
		43.0	66.91	109.91	
		43.0	65.95	108.95	444.55
1936	34	8.5	65.37	73.87	
		8.5	44.32	52.82	
		8.5	31.69	40.19	
		8.5	24.11	32.61	199.49
1937	33	8.25	19.57	27.82	
		8.25	16.69	24.94	
		8.25	14.96	23.21	
		8.25	13.93	22.18	98.15
1938	152	38.0	13.31	51.31	
		38.0	30.79	68.79	
		38.0	41.27	79.27	
		38.0	47.56	85.56	284.93





# A P P E N D I X   B .

Income Created by Government Deficit Spending, the United States, 1930-1938. In Millions of Current Dollars. (According to the multiplier theory; assumed three months periods, and marginal propensity to consume of 0.6).

Year	Yearly deficit	Quarterly deficit	Spent from preced. period	Total quarterly income (3+4)	Deficit created aggregate income for the year
1	2	3	4	5	6
1930	257	64.25	-	64.25	
		64.25	38.55	102.80	
		64.25	61.68	125.93	
		64.25	75.56	139.81	432.79
1931	2798	699.50	83.89	783.39	
		699.50	470.03	1169.53	
		699.50	701.72	1401.22	
		699.50	840.73	1540.23	4894.37
1932	1705	426.25	924.14	1350.39	
		426.25	810.23	1236.48	
		426.25	741.89	1168.14	
		426.25	700.88	1137.13	4892.14
1933	1272	318	682.28	1000.28	
		318	600.17	918.17	
		318	550.90	868.90	
		318	521.34	839.34	3626.69
1934	2355	588.75	503.60	1092.35	
		588.75	655.41	1244.16	
		588.75	745.50	1334.25	
		588.75	800.55	1389.30	5060.06
1935	1849	462.25	833.58	1295.83	
		462.25	777.50	1203.77	
		462.25	722.26	1184.51	
		462.25	710.71	1172.96	4857.07
1936	2879	719.75	703.78	1423.53	
		719.75	854.12	1573.87	
		719.75	944.32	1664.07	
		719.75	998.44	1718.19	6379.66
1937	-685 (surplus)	-171.25	1030.91	859.66	
		-171.25	515.80	344.55	
		-171.25	206.73	35.48	
		-171.25	21.29	-149.27	1090.42
1938	1490	372.50	-79.56	292.94	
		372.50	175.76	548.26	
		372.50	328.96	701.46	
		372.50	420.88	793.38	2336.04



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